PK

TRANSACTIONS & STUDIES

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
AUG 12 1991

of
THE COLLEGE OF PHYSICIANS
OF PHILADELPHIA

MEDICINE & HISTORY

Series V Volume XIII No. 2 JUNE 1991

CAROLINE HANNAWAY, *Editor*

Carla C. Jacobs, *Managing Editor*

College of Physicians of Philadelphia

OFFICERS

Daniel L. Shaw, Jr., M.D., *President*
Robert H. Bradley, Jr., M.D., *President Elect*
John L. McClenahan, M.D., *Secretary*
Joseph A. Wagner, M.D., *Treasurer*
John M. O'Donnell, Ph.D., *Executive Director*

COUNCIL

Mark W. Allam, V.M.D.
Robert Austrian, M.D.*
Herman Beerman, M.D.
Lewis W. Bluemle, Jr., M.D.*
Robert H. Bradley, Jr., M.D.
Lewis L. Coriell, M.D., Ph.D.*
Richard A. Davis, M.D.
John W. Eckman
William C. Frayer, M.D.
William L. Kissick, M.D.
Edithe J. Levit, M.D.
John L. McClenahan, M.D.
Emily H. Mudd, Ph.D.
Frederick Murtagh, M.D.
James A. O'Neill, M.D.
Ann O'Sullivan, R.N., Ph.D.
Robert S. Pressman, M.D.*
Edward J. Resnick, M.D.
Jonathan E. Rhoads, M.D.*
Brooke Roberts, M.D.*
George P. Rosemond, M.D.*
Robert G. Sharrar, M.D.
Daniel L. Shaw, Jr., M.D.
Robert M. Stein, Ph.D.
Edward J. Stemmler, M.D.
Joseph A. Wagner, M.D.

*Former President

* * * * *

Sarah W. Tracy, Copy Editor The Winchell Company, Printers

* * * * *

Transactions & Studies of the College of Physicians of Philadelphia (ISSN 0010-1087) is published four times a year (March, June, September, December) by the College of Physicians of Philadelphia, 19 South 22nd Street, Philadelphia, PA 19103. Second-class postage paid at Philadelphia, PA 19104. POSTMASTER: Send address changes to *Transactions & Studies of the College of Physicians of Philadelphia*, 19 South 22nd Street, Philadelphia, PA 19103.

Subscription correspondence should be sent to the journal at the same address. Subscriptions, U.S.A. and Canada $35.00, foreign $40.00. Single copies, $10.00.

Transactions & Studies of the College of Physicians of Philadelphia is indexed in *Biological Abstracts*, *Chemical Abstracts*, and *Index Medicus*.

TRANSACTIONS & STUDIES

of
THE COLLEGE OF PHYSICIANS
OF PHILADELPHIA

MEDICINE & HISTORY

Series V Volume XIII No. 2 JUNE 1991

Acknowledgments

The publication of this issue of *Transactions & Studies of the College of Physicians of Philadelphia* is made possible through the generosity of:

The M. Louise Carpenter Gloeckner Memorial Fund

The Morris Feld Memorial Fund

Copyright © 1991 by The College of Physicians of Philadelphia

TRANSACTIONS & STUDIES
OF THE
COLLEGE OF PHYSICIANS OF PHILADELPHIA
Series V Volume XIII Number 2 June 1991

MEDICINE AND HISTORY

Contributors v

Puerile Respiration: Laennec's Stethoscope and the Physiology of Breathing
JACALYN DUFFIN 125

Elisha Kent Kane, M.D., U.S.N., 1820–1857
JOHN McCLENAHAN 147

Rising Stars: Carl G. Jung and Astrology
FRED B. ROGERS 167

FROM THE HISTORICAL COLLECTIONS OF THE LIBRARY

Elisha Kent Kane's Unpublished Treatise on Dropsy
THOMAS A. HORROCKS 173

WOOD INSTITUTE REPORTS

Report of the 1988–1989 Rockefeller Fellows
NANCY J. TOMES
JULIA EPSTEIN 177

Report of the 1989–1990 Rockefeller Fellow
PHILIP PAULY 186

LIST OF BOOKS RECEIVED

REVIEWS

L. R. LIND, trans., *Berengario da Carpi On Fracture of the Skull or Cranium*
Reviewed by Vivian Nutton 195

GEORGE TIEMANN & CO., *American Armamentarium Chirurgicum*
Reviewed by Philip M. Teigen 196

HENRY R. ROLLIN, *Festina Lente: A Psychiatric Odyssey*
Reviewed by O. Spurgeon English 198

VICTORIA A. HARDEN, *Rocky Mountain Spotted Fever: History of a Twentieth-Century Disease*
Reviewed by Robert M. Swenson 201

JANET COLAIZZI, *Homicidal Insanity, 1800–1985*
Reviewed by Julie Johnson 202

MEMOIRS

Francis Clark Wood (1901–1990)
JONATHAN E. RHOADS 205

Francis Clark Wood: His Contributions to Medical Science, 1901–1990
TRUMAN G. SCHNABEL, JR. 209

John Perry Hubbard (1903–1990)
EDITHE J. LEVIT 215

Arthur M. Dannenberg, Sr. (1891–1990)
HENRY J. TUMEN 221

Contributors To This Issue

JACALYN M. DUFFIN, M.D., Ph.D. is the Jason A. Hannah Professor of the History of Medicine at Queen's University at Kingston, Ontario, Canada. A hematologist and historian, her research interests include medicine in post-Revolutionary France and in nineteenth-century Canada.

O. SPURGEON ENGLISH, M.D. was Clinical Professor in the Department of Psychiatry at Temple University School of Medicine from 1933 to 1938, and Department Head from 1938 to 1964. He has been a Fellow of the College of Physicians of Philadelphia since 1945.

JULIA EPSTEIN, Ph.D. is Associate Professor of English at Haverford College, and Co-Chair of the joint Haverford and Bryn Mawr College Program in Comparative Literature.

THOMAS A. HORROCKS, M.A. is Director of the Library for Historical Services at the College of Physicians of Philadelphia. Mr. Horrocks is pursuing a Ph.D. in American History at the University of Pennsylvania.

JULIE JOHNSON, M.A. is a doctoral candidate in the Department of History & Sociology of Science at the University of Pennsylvania. Her dissertation deals with forensic pathology and medicolegal relations in the United States.

EDITHE J. LEVIT, M.D. is President Emeritus and a Life Member of the National Board of Medical Examiners. Dr. Levit is a member of the Council of the College of Physicians of Philadelphia, and has been a Fellow of the College since 1964.

JOHN L. McCLENAHAN, M.D. is Secretary of the College of Physicians of Philadelphia, and a former editor of the *Transactions & Studies of the College of Physicians of Philadelphia*. He has been a Fellow of the College since 1958.

VIVIAN NUTTON, Ph.D. is Senior Lecturer in the History of Medicine, The Wellcome Institute, London. He is the author of *Galen, On Prognosis* and *From Democedes to Harvey.*

PHILIP PAULY, Ph.D. is Associate Professor of History at Rutgers University. He is currently working on a history of scientists and alcohol in America, 1890–1940.

JONATHAN E. RHOADS, M.D. is Professor of Surgery at the Medical School of the University of Pennsylvania, and a long-time colleague and friend of Dr. Francis C. Wood. Dr. Rhoads has been a Fellow of the College of Physicians of Philadelphia since 1945.

FRED B. ROGERS, M.D. is Professor of Family Practice & Community Health at Temple University School of Medicine. A Fellow of the College of Physicians of Philadelphia since 1955, Dr. Rogers is a former editor of the *Transactions & Studies of the College of Physicians of Philadelphia.*

TRUMAN G. SCHNABEL, Jr., M.D. is C. Mahlen Kline Professor Emeritus of Medicine and Distinguished Professor Emeritus of the University of Pennsylvania School of Medicine. He is also the Acting Director of the Institute on Aging at the University of Pennsylvania.

ROBERT M. SWENSON, M.D. is Professor of Medicine and Microbiology at Temple University Health Sciences Center. An infectious disease specialist and immunologist, he has been a Fellow of the College of Physicians of Philadelphia since 1989.

PHILIP M. TEIGEN, Ph.D. is Deputy Chief of the History of Medicine Division at the National Library of Medicine. His research interests focus upon the history of veterinary education and the history of medical publishing.

NANCY J. TOMES, Ph.D. is Associate Professor of History at the State University of New York, and is currently working on a book about the popularization of the germ theory. Dr. Tomes became a Fellow of the College of Physicians of Philadelphia in 1990.

HENRY J. TUMEN, M.D. is Emeritus Professor of Medicine at the University of Pennsylvania School of Medicine, and a consultant in gastroenterology at the Graduate Hospital and the Albert Einstein Medical Center. He has been a Fellow of the College of Physicians of Philadelphia since 1933.

Puerile Respiration: Laennec's Stethoscope and the Physiology of Breathing

JACALYN M. DUFFIN

> On doit donc étudier les erreurs et les échecs avec autant de soin que les réussites. Les erreurs d'un Descartes et d'un Galilée . . . ne sont pas seulement instructifs; ils sont révélateurs des difficultés qu'il a fallu vaincre, des obstacles qu'il a fallu surmonter.
>
> Alexandre Koyré [1]

Introduction

René Théophile Hyacinthe Laennec (1781–1826) invented the stethoscope in 1816. This instrument made possible the detection of organic changes in the living patient, thereby linking the science of pathological anatomy to bedside medicine. Secondary accounts of Laennec's contribution have emphasized the importance of structure and pathology in his concepts of health and disease; his stethoscope has come to symbolize the triumph of anatomical diagnosis.[2] But Laennec did not confine his auscultation to the investigation of clinical illness and organic pathology; he believed that it could also be successfully applied to the study of human physiology. This preoccupation is most evident in his exploration of the sound he termed "puerile respiration."

What exactly did Laennec understand by puerile respiration? When and why did he first apply it as a clinical sign? Why and how did it disappear from medical terminology? Did his understanding of this sound have any predictive utility? In an attempt to answer these questions, I have examined Laennec's books, manuscript lecture notes, and case records and compared his understanding of

1. "One should study the errors and failures with as much care as the successes. The errors of a Descartes or a Galileo . . . are not only instructive; they reveal the difficulties that had to be conquered, the obstacles that had to be overcome." Alexandre Koyré, *Etudes d'histoire de la pensée scientifique* (Paris: Gallimard, 1973), p. 14.

2. Stanley Joel Reiser, *Medicine and the Reign of Technology* (Cambridge and London: Cambridge University Press, 1978), pp. 23–44.

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 125-145
© 1991 by The College of Physicians of Philadelphia.

puerile respiration with the notions of physiology held by his contemporaries and by his successors.[3]

Anatomy, Pathology, and Physiology in the Paris School

Members of the post-Revolutionary Paris school of medicine emphasized organic changes and investigated their relationship to disease, a method that has come to be known as anatomo-clinical medicine.[4] Some doctors, among them Léon Louis Rostan (1790–1866) and Jean-Baptiste Bouillaud (1796–1881), believed that, as pathological anatomy progressed, organic changes would be found to explain every illness.[5] This notion was further developed into the doctrine of "organicism," which held that organic changes did exist for all diseases, even if those changes had not yet been identified.[6]

In contrast to his colleagues, Laennec believed that the human body was comprised of three equally important components; solids, liquids, and vital principle. Illness could arise from an alteration in any of the three.[7] Clinically unmistakable diseases that left no trace in the cadaver were explained by the concept of the "life force" or vital principle. Laennec's stethoscope was seen as a major contribution to anatomo-clinical medicine, but his retention of the vital

---

3. Most of the Laennec manuscripts are held in two archives: the Bibliothèque Interuniversitaire de Médecine de Paris and the Musée Laennec, Bibliothèque Universitaire de Nantes, hereinafter "Nantes." See Lydie Boulle, Mirko D. Grmek, Catherine Lupovici, and Janine Samion-Contet, eds., *Laennec: Catalogue des manuscrits scientifiques* (Paris: Masson, 1982).

4. On the development of anatomo-clinical medicine in Paris, see Erwin H. Ackerknecht, *Medicine at the Paris Hospital* (Baltimore, Md.: Johns Hopkins University Press, 1967), pp. 89–99, and Michel Foucault, *Naissance de la clinique* (Paris: Presses Universitaires de France, 1963), pp. 177–198.

5. Léon Louis Rostan, *Exposition des principes de l'organicisme* (Paris: L'Abbé, 1846) and Jean-Baptiste Bouillaud, *Essai sur la philosophie médicale et sur les généralités de la clinique médicale* (Paris: Rouvier et Bouvier, 1836).

6. On organicism, see William Coleman, *Biology in the Nineteenth Century* [1971] (London and New York: Cambridge University Press, 1977), pp. 11–14, 119–120; Mirko D. Grmek and A. Rousseau, "L'oeuvre cardiologique de Léon Rostan," *Revue d'histoire des sciences,* 1966, *20*:33–52; Thomas S. Hall, *Ideas of Life and Matter,* 2 vols. (Chicago: University of Chicago Press, 1969), vol. 2, pp. 251–254; Owsei Temkin, "Materialism in French and German Physiology in the Early Nineteenth Century," *Bulletin of the History of Medicine,* 1946, *20*:322–327.

7. Jacalyn M. Duffin, "The Medical Philosophy of R. T. H. Laennec (1781–1826)," *History and Philosophy of the Life Sciences,* 1986, *8*:195–218.

principle as an active agent in normal and abnormal physiology was not popular.[8]

Vitalism, or the use of the notion of vital force, provided a means of explaining those biological phenomena that defied reduction to physico-chemical terms. While many contemporary physiologists, including the young François Magendie (1783–1855), paid lip-service to the existence of the vital force or principle, the term gradually disappeared from research vocabulary.[9] It was easier to concentrate on locating and measuring life processes that lent themselves to such study. This orientation carried physiology into the realm of anatomy through the correlation of functional abnormalities with pathological change.[10]

Following the work of Antoine-Laurent Lavoisier and Lazzaro Spallanzani, the Paris medical faculty, led by the chemist Antoine Fourcroy, taught that respiration involved the uptake of oxygen or "vital air" and the release of heat (caloric). Research focussed on the site and control of gaseous exchange and there was a certain fascination with the prospect of oxygen therapy.[11] Laennec was aware of these studies and recognized their importance; nevertheless, he clung to his "outmoded" vision of bodily function and collected evidence for proof of the existence and operation of the vital principle. Puerile respiration was part of this evidence.

Puerile Respiration

In a brief 10 years of research, Laennec named and gave exquisitely accurate descriptions of most of the normal and abnormal breath sounds still in use today. Not all of his signs were destined for immortality and, since his death, auscultatory terminology has decreased considerably. Among the many expressions that have fallen into disuse is his sign, puerile respiration. Recent manuals of physical diagnosis rarely mention puerile respiration, although it is still possible to find definitions in some late twentieth-century medical

8. Jacalyn Duffin, "Vitalism and Organicism in the Philosophy of R. T. H. Laennec," *Bulletin of the History of Medicine,* 1988, *62*:525–545.

9. John Lesch, *Science and Medicine in France: The Emergence of Experimental Physiology, 1790–1855* (Cambridge, Mass., and London: Harvard University Press, 1984), pp. 92–96.

10. Ibid., pp. 172–173.

11. Harry Bloch, "Phenomena of Respiration: Overview to the Twentieth Century," *Heart and Lung,* 1987, *16*:419–423; W. A. Smeaton, *Fourcroy, Chemist and Revolutionary, 1755–1809* (Cambridge: Heffer, 1962), pp. 136–137.

dictionaries. For example, the 1988 edition of *Dorland's Illustrated Medical Dictionary* defines puerile respiration as breath sounds that are "more intense than those of normal adults and resemble those of childhood."[12] Textbooks of physical diagnosis may continue to speak of increased intensity in breath sounds, but they appear to have dropped the term as a physical sign sometime during the last two generations.[13] It is still generally accepted that the breath sounds of children are louder than those of adults, but there is some dispute over the cause of this difference.[14] The relative thinness of the overlying chest wall in children has long been considered a cause of the increased intensity; however, at least one recent study has challenged this notion and the reasons for augmentation in breath sound intensity remain obscure.[15]

For Laennec, puerile respiration had three distinct meanings. First, it represented the louder type of respiratory sound heard in most healthy children; hence, the name. He concluded that, because children are growing and have relatively large alimentary needs, the enhanced respiratory sound was proportional to their greater need for oxygen and reflected the more physiologically efficient nature of each infant breath. Second, he thought that puerile respiration also occurred in some adults as their usual type of breath sound. Third, he believed it could be acquired as an accessory change in certain pathological conditions and could be a diagnostic sign. This latter meaning was not developed until late in his career.

---

12. *Dorland's Illustrated Medical Dictionary,* 27th ed. (Philadelphia and London: W. B. Saunders Harcourt Brace Jovanovich, 1988), p. 1450. *Stedman's Medical Dictionary,* 25th ed. (Baltimore, Md.: Williams and Wilkins, 1990), p. 1347.

13. See, for example, the changes in successive editions of one work from its 1945 third edition, to more recent editions: Ralph Hermon Major, *Physical Diagnosis* (Philadelphia: W. B. Saunders, 1945), p. 163; Mahlon H. Delp and Robert T. Manning, eds., *Major's Physical Diagnosis: An Introduction to the Clinical Process,* 8th ed. (Philadelphia and London: W. B. Saunders, 1975), p. 341; see also the 9th ed., 1981, p. 212. One recent text refers only to potential decrease in intensity of vesicular sounds, implying that increase is not within the realm of clinical possibility. John Macleod, E. B. French, J. F. Munro, *Introduction to Clinical Examination,* 4th ed. (Edinburgh and London: Churchill Livingston, 1985), p. 32.

14. Barbara Bates, *A Guide to Physical Examination and History Taking,* 5th ed. (Philadelphia: J. B. Lippincott, 1991), pp. 250 and 610.

15. Dennis E. O'Donnell and Steve S. Kraman, "Vesicular Lung Sound Amplitude Mapping by Automated Flow-gated Phono-pneumography," *Journal of Applied Physiology,* 1982, *53*:603–609.

Laennec's very long description of puerile respiration was identical in both editions of his book on auscultation (1819 and 1826).[16] He said that adults who retained this type of breath sound into old age were of nervous temperament and their characters retained aspects of the "irascibility" of childhood. He believed that the blood of normal children or of sick persons with puerile respiration was chemically different and probably contained more oxygen than that of normal adults. He denied that this sound was due to variations in thickness of the chest wall, because it could be heard in muscular males and through the female breast.

For Laennec, puerile respiration was a form of breathing that extracted more than the usual amount of oxygen from the atmosphere. It was the sign of a "perfect" or "complete" breath, in response to an increased need originating elsewhere in the organism. When it was heard in apparently healthy people, it translated a variation in ambient nervous tone [my word]. During illness, it represented the extra work being done to supply the organism's increased demand for oxygen, a demand resulting from the presence of an organic change in another part of the lungs or from an increase in the entire body's physiological need for oxygen.

Laennec's younger disciples emphasized the difficulty in recognizing this sound. None reduced it to a simple increase in the intensity of respiration; there was some nuance in the quality of the sound as much as in its intensity, which required vast stethoscopic experience to detect. One student claimed that puerile respiration was "never caused by a lesion of the lung or part thereof"; it was heard in the "healthy lung where the action is momentarily increased to supply the unhealthy parts"; and it had been "observed in portions of lung which were invaded by pneumonia on the following day."[17]

No pathological conditions, Laennec said, provided more evidence of the existence of nervous influence on the soma than did those states associated with puerile respiration: there was no ana-

---

16. René T. H. Laennec, *De l'auscultation médiate ou diagnostique des maladies des poumons et du coeur fondé principalement sur ce nouveau moyen d'exploration,* 2 vols. (Paris: Brosson and Chaudé, 1819), vol. 1, pp. 155–158; René T. H. Laennec, *Traité de l'auscultation médiate et les maladies des poumons et du coeur,* 2nd ed., 2 vols. (Paris: J. S. Chaudé, 1826), vol. 1, pp. 50–53.

17. Victor Collin, *Des diverses méthodes de l'exploration de la poitrine* (Paris: Baillière, 1824), pp. 37–38. See also Mériadec Laennec, "L'auscultation médiate: peut-elle servir aux progrès de la médecine pratique?" thesis in medecine, no. 92 (Paris: Didot, 1821).

tomical lesion, yet the patient was sick. He said, "Where the respiration is puerile, dyspnea can only be attributed to a particular state of the 'nervous fluid', or 'vital principle,' or, if you will, to an exaggerated need for increased oxygenation of the blood than occurs in a healthy man."[18]

Laennec's signs may not have been equally durable, but most had some predictive capacity. His interpretation of the heart sounds was erroneous and the cardiac signs he developed have been discarded; yet, these same signs did have predictive value within the conceptual framework he applied to pathology.[19] His fortuitous discovery of pectoriloquy in a woman, who at autopsy was found to have an underlying lung cavity, was a powerfully heuristic event.[20] For him, pectoriloquy became the *sine qua non* of tuberculous excavation; it is still thought to have clinical value. The recognition that puerile respiration could be a pathognomonic sign for a *lesionless* state may have struck Laennec with similar force. Like pectoriloquy, puerile respiration was an objective sign, audible to any educated observer. But it was special: it indicated functional, not structural, change. In his view, puerile respiration was to be the first indisputable sign of purely physiological alteration, a nonanatomical but nonetheless real change or lesion in that "life force," whose very existence Laennec's colleagues dared to challenge.

Laennec's Asthma

At the beginning of the nineteenth century, the ancient term asthma had come to mean shortness of breath without particular emphasis on cause. Many different disease states — cardiac, pulmonary, metabolic, and febrile — can produce rapid and labored respiration. William Heberden left a broad description of asthma that had actually included a case of mitral stenosis and another of emphysema, both of which Laennec would have been able to detect by 1819.[21] With the advent of percussion and auscultation, asthma was sepa-

18. Laennec, *Traité,* 2nd ed., 1826, vol. 2, pp. 83–84.

19. Jacalyn M. Duffin, "The Cardiology of R. T. H. Laennec," *Medical History,* 1989, *33*:42–71.

20. Mirko D. Grmek, "L'invention de l'auscultation médiate, retouchés à un cliché historique," *Revue du Palais de la Découverte,* 1981, special number, *22*:107–116.

21. William Heberden, *Commentaries on the History and Cure of Diseases* [1802] (reprint, New York: New York Academy of Medicine and Hafner, 1962), pp. 62–69.

rated from the more obviously organic alterations of the heart and lung. For example, early in his organicist agenda, Rostan challenged the traditional idea that asthma of the elderly was a nervous affliction and suggested that it was caused by edema in the lungs.[22]

There remained some dyspneic conditions associated neither with physical signs nor with postmortem organic lesions sufficient to account for the extreme distress or death of the patient. Asthma was shrinking as an appropriate term for the description of symptoms and was reserved only for lesionless types of dyspnea.[23] Some physicians defined it as a disease of the lungs without organic change;[24] others, as a nervous condition.[25]

Asthma was conceptually problematic to those doctors who adopted anatomo-clinical ideas. Like the "essential fevers" or "mental alienation," it was clinically recognizable, but pathologically obscure.[26] Nevertheless, the vociferous controversy that surrounded fevers and insanity as apparently non-organic diseases does not appear to have extended to lesionless asthma. Perhaps this was because it was not often fatal. Asthma may have been perceived as an ancient term fast on its way to obsolescence via the progress of pathological anatomy.[27] Attempts to find certain anatomo-pathological correlatives for a vague, rarely fatal, and possibly non-existent disease may have been seen as a waste of time.

Laennec's description of asthma cannot be called classic, but it does have its own terrible consistency intimately linked to puerile respiration as a diagnostic sign.[28] His understanding of puerile respi-

22. Léon Louis Rostan, "L'asthme des vieillards est-elle une affection nerveuse?" *Nouveau journal de médecine,* 1818, *3*:3–30.

23. For an overview of the history of asthma, see J.-J. Peumery, *Histoire illustrée de l'asthme de l'antiquité à nos jours* (Paris: Dacosta, 1984).

24. A. L. M. Lullier-Winslow, "Asthme," in C. L. F. Panckoucke, ed., *Dictionnaire des sciences médicales,* 60 vols. (Paris: Crapart and Panckoucke, 1812), vol. 2, pp. 406–412.

25. A. Chomel, "Asthme," in A. Beclard *et al.*, eds., *Nouveau dictionnaire de médecine, chirurgie, pharmacie, physique, chimie et histoire naturelle,* 2 vols. (Paris: Méquignon-Marvis Crochard Gabon, 1821), vol. 1, pp. 205–207.

26. See "La crise des fièvres," in Foucault, *Naissance de la clinique,* pp. 177–198.

27. Rostan expressed this positivist sentiment in his essay "L'asthme des vieillards," 1818, and in his later publication *Jusqu'à quel point l'anatomie pathologique peut-elle éclairer la thérapeutique des maladies* (Paris: n.p. [contribution to a competition], 1833), p. 15.

28. Although he recognized chest hyperinflation, Laennec did not emphasize it in asthmatics, nor did he appear to recognize the associated prolonged expiration. Expiratory wheezing, now considered to be a reliable sign of the condition, had been described by Laennec elsewhere, but he did not link these sounds with asthma. Because of the dilated chest and the decreased breath sounds, Laennec compared

ration led him to two detailed and, to some extent, visionary hypotheses to explain the mechanism of asthma: the first, an augmentation of the baseline "need" or "want" for air; the second, a bronchiolar muscle spasm.

The two mechanisms for asthma appear to have been formulated sometime between 1819 and 1826, the dates of the first two editions of the *Traité de l'auscultation médiate*. The first edition contained the lengthy description of puerile respiration, but asthma, the disease, was reduced to a non-organic manifestation of the bronchial condition, "catarrhe chronique," diagnosed far more often than it occurred.[29] No connection was established between puerile respiration and any specific disease. At first, then, Laennec seems to have accepted the organicist opinion that most dyspnea could, or would eventually, be associated with previously unrecognized organic changes.

In the second edition, Laennec repeated his description of puerile respiration, but waxed eloquent for close to 30 pages on asthma.[30] He divided the disease into two distinct types, "puerile" and "spasmodic," both nervous conditions and both dependent on the sign puerile respiration for diagnosis. Puerile asthma consisted of an increased need for oxygen. It was further subdivided into primary or secondary forms (roughly corresponding to the modern notions of "acute idiopathic" and "superimposed on chronic"). Diagnosis was based on the sound puerile respiration, which was present in all cases. He likened the physiological circumstances in this type of asthma to the increased oxygen demand and altered nervous tone that he had hypothesized to exist in individuals who always displayed puerile respiration as their usual type of breath sound.

The second form, spasmodic asthma, was a complication of chronic illness and included the periodic forms of breathlessness, which are now labelled "extrinsic" or allergic asthma. Spasmodic asthma was to be recognized by temporary decrease in the breath sounds in the setting of an inflated chest. If, however, these patients

---

auscultation in the spasmodic variety of asthma to that in emphysema. His hypothesis for the physical production of emphysema with partially obstructed bronchioles acting as one-way valves, was similar to the mechanism of asthma presently in favor. See Laennec, *De l'auscultation médiate,* 1819, vol. 1, pp. 221–222; 1826, vol. 1, pp. 96, 105–106.

29. Laennec, *De l'auscultation médiate,* 1819, vol. 1, p. 59.

30. Laennec, *Traité,* 2nd ed., 1826, vol. 2, pp. 71–98.

were induced to momentarily "increase their need for respiration" by prolonged coughing, the Valsalva manoeuvre, or rapid, loud recitation of prayers without breathing, Laennec said, the first inspiration following the exercise would be puerile, or louder. The spasm seemed to some extent to be under both voluntary and involuntary nervous control "because even healthy men can make soundless inspirations."

Laennec used anatomical and physiological explanations to explain spasmodic asthma. Citing John Floyer, he speculated that the underlying mechanism was spastic contraction of Reisseisen's bronchiolar musculature.[31] Spasm of the bronchiolar musculature is now thought to be part of the pathophysiology of asthma; however, Laennec believed that both the bronchioles and the air sacs were covered with muscles and that owing to these muscles, the lung had its own action ("action propre"), independent of the costal and diaphragmatic respiratory movements. If these bronchial and alveolar muscles were to contract, the lung would not be able to absorb oxygen, despite great physical exertion from the skeletal musculature. This seemed to explain the situation in asthmatics, who were exhausted from efforts to breathe and, yet, appeared to have no organic lesion in their lungs. Laennec did not address the seemingly obvious question resulting from his hypothesis: what filled the extra space between the contracted air cells and the inflated chest wall?

Two cases were included to illustrate the role of the mental state in the production of spasmodic asthma: the first, a horse-rider, who developed breathlessness every time he left his home town; the second, a certain octogenarian, "M. le comte H . . . ," whose 30-year history of asthma depended on the inadvertent absence of his night lamp or on a closed window.[32] Laennec observed that light, fresh air and closing the eyes produced a beneficial effect and that emotional stress or the exposure to certain "smells," especially tuberose and heliotrope, could provoke an attack. He equated these phenomena, since they were all mediated by the "nervous" or sensory systems, one external, the other internal. He used them as

---

31. John Floyer, *Traité de l'asthme* [1698], trans., Jault (Paris: Servière, 1785), pp. 55–57. For a discussion of Floyer's construction of asthma, see John Gabbay, "Asthma Attacked? Tactics for the Reconstruction of a Disease Concept," in Peter Wright and Andrew Treacher, *The Problem of Medical Knowledge: Examining the Social Construction of Medicine* (Edinburgh: Edinburgh University Press, 1982), pp. 23–48.

32. Laennec, *Traité,* 2nd ed., 1826, vol. 2, pp. 89–90, and 93.

further evidence for the nervous or "vital" nature of the disease. Open to a physico-chemical explanation of these immaterial effects, he cited "l'électricité atmosphérique" as a potential mediator.[33]

Although Laennec considered several therapeutic modalities, including pure oxygen, his conception of the altered physiology led him to recommend narcotics for asthma in order to "decrease the need for respiration."[34] In the present understanding, asthma does not result from, but causes an increased need for oxygen. The body has not suddenly begun to consume more oxygen, but the lungs have suddenly begun to provide less. Asthmatics need oxygen because the bronchospasm does not allow sufficient gaseous exchange. Narcotics decrease respiratory action at the level of the brain. In no way do they reduce the organism's need for oxygen; in fact, they reduce the efforts made to obtain it. Their use in asthma may have been nothing short of deadly. How often Laennec used them and with what result cannot be determined from his papers. He was aware of the experiments of his fellow Breton, the physiologist J. J. C. Legallois (1770–1814), who had demonstrated that a lesion in the medulla oblongata could arrest respiration, but the neurological effects of morphine were still poorly understood.

Why did Laennec revise the entries on asthma for the second edition of his book? Two possible reasons can be identified. First, his own illness may have been a factor. Having long considered himself to be of a nervous temperament, he diagnosed his various indispositions as hypochondria, gout, and asthma.[35] In 1819, his precarious health deteriorated to the point that he was obliged to retire to his native Brittany for an illness characterized by severe dyspnea without cough. His younger cousin claimed to have heard puerile respiration on listening to Laennec's chest.[36] Although this illness was probably an early attack of the pulmonary tuberculosis which would claim his life seven years later, it is clear that Laennec and his cousin thought that he was suffering from asthma.

---

33. Ibid., vol. 2, pp. 88–89.

34. Collège de France, lesson 39, 1823–1824 (Ms.), Nantes, Cl. 2 lot a(B) f.292 recto.

35. Alfred Rouxeau, *Laennec,* 2 vols. [1912 and 1920] (Quimper: Editions du Cornouaille, 1978, reprint in 2 vols.), vol. 1, pp. 128–130; vol. 2, pp. 82–84, 171–172, 174, and 201–203.

36. Laennec's translator, Forbes, reported this personal detail in his preface claiming he had learned it from Laennec's cousin. John Forbes, in René T. H. Laennec, *A Treatise of Diseases of the Chest,* 2nd ed. (London: Underwood, 1827), p. xix. See also Rouxeau, *Laennec,* vol. 2, pp. 221–222.

Another factor contributing to Laennec's reconsideration of asthma may have been the obligation to discuss the disease in public lectures. In 1822, he was appointed to the chair of medicine at the Collège de France. A lecture on auscultation, without reference to puerile respiration, was given in either December 1823 or January 1824.[37] The lecture on asthma was read no more than six or eight weeks later; by this time, however, Laennec distinguished between the two types of asthma, puerile and spasmodic, on the basis of puerile respiration, exactly as he would publish two years later.[38] The lesson on asthma fell into a broad discussion of neuralgias: in this context, asthma was a nervous condition localized to the lung.

It seems, then, that Laennec's hypothesis connecting asthma with puerile respiration was developed sometime between August 1819, when the first edition of his book appeared, and March 1824, when he gave his lecture. It is possible that he first applied the meaning of puerile respiration to asthma in assessing his own illness and extrapolated on its significance in preparing for his lectures.

Cases

Did Laennec use puerile respiration and his understanding of asthma at the bedside? Usually, he included clinical observations in his book to support his conjectures about auscultatory sounds, but his section on asthma was almost devoid of such cases. The 1826 edition contained no autopsies from Laennec's own experience: the two "nervous" men were both alive at the time he went to press. He referred to two autopsy cases published elsewhere by other doctors.[39] Unfortunately, a search in the patient records among Laennec's papers revealed an almost complete absence of cases formally designated asthma. Thus, to elucidate Laennec's personal experience with increased respiration, the (more than seven hundred) patient records were examined individually for observations

37. Laennec's lessons at the Collège de France were given in a two-year series, from 1822 to 1824 and repeated from 1824 to 1826. Auscultation was discussed in lessons 26 and 27, 1823–1824 (Ms.), Nantes, Cl. 2 lot a(B), f. 246–252.

38. "Asthme," Collège de France, lesson 39, 1823–1824 (Ms.), Nantes, Cl. 2 lot a(B), f. 291–291.

39. Gabriel Andral, *Clinique médicale ou choix d'observations recueillies à la clinique de M. Lerminier,* 4 vols. (Paris: Gabon, 1824), vol. 2, observation xx; L. B. Guersent, "Asthme," in N. P. Adelon *et al.*, eds., *Dictionnaire de médecine* (Paris: Bechet, 1821), vol. 3, p. 126.

that might pertain to asthma, puerile respiration, and other conditions associated with increased breathing.

The search was broadened to include cases that may have described patients suffering from metabolic disturbances that result in enhanced breathing. If Laennec had seen a few cases of thyrotoxicosis or diabetic ketoacidosis, would he not have made the plausible assessment that these patients were breathing more, because they needed to breathe more? In a convoluted way, such metabolic disorders could be said to display increased breathing in response to an elevated "need for breathing" (if not oxygen) generated throughout the organism. Might he have labelled such breathing puerile respiration? If so, these diseases would necessarily participate in his ultimate description of asthma. This search was not easy, because Laennec never listed "diabetes" as a final diagnosis and he seems to have been unaware of the descriptions of toxic goiter by Caleb Hillier Parry published in 1815 and 1825.[40]

Nine cases have been found pertaining to asthma, puerile respiration, or possible metabolic disorders. All represent sick individuals, but Laennec had maintained that certain healthy people displayed puerile respiration as their normal breath sound. It is possible that these nervous persons may have been given to hyperventilating, especially when their attention was directed to their breathing by the conspicuous use of a new diagnostic instrument. Hyperventilation can augment the intensity of the breath sound and its presence may have caused the doctor to observe increased or puerile respiration. For healthy individuals, no records have survived and it is not possible to investigate the experience that led Laennec to his claim.

1. A 59-year-old male was admitted to hospital for 10 days on 21 April 1825. His dyspnea improved in two days and he left the hospital cured with no record having been made of the stethoscopic examination. The final diagnosis was "catarrhe chronique. asthme?"[41]

---

40. Caleb Hillier Parry, *Elements of Pathology and Therapeutics* (London: Underwood, 1815) and *Collections from the Unpublished Medical Writings* (London: Underwood, 1825), vol. 2, pp. 111–120.

Laennec did not write a special article on the thyroid, but one of his manuscript fragments reveals that he considered symptoms of its dysfunction to be unknown, Carnet "Adversaria" (Ms.), Nantes, f. 38.

41. Jean Adam (Ms.), Nantes, Cl. III, f. 319 recto. Boulle *et al.* in their *Catalogue* named this patient as "Jean Charles (Nicolas)" [sic], p. 77 and 312.

2. A 26-year-old saddler was admitted to hospital on 18 May 1824 for a febrile wasting condition diagnosed as "phthisis." He was discharged on 1 August and readmitted two days later for sudden onset of right-sided chest pain and severe shortness of breath, diagnosed as "right pneumothorax." On 4 August he was found to have "puerile respiration on the left, absence of breath sounds on entire right side . . . . " He died on the "17?" [sic] of September. Autopsy revealed the right lung compressed to one eighth of its normal volume and the left lung, "quite healthy," with a few tubercles and one small apical cavity.[42]

3. A 31-year-old mason was admitted 21 June 1824 for a week-long febrile illness with hemoptysis and dyspnea. Physical examination revealed decreased respiration and egophony on the left and "puerile respiration throughout on the right." Three days later he died. Autopsy confirmed the presence of a left pleuropneumonia complicated by pericarditis, but the right lung was "healthy, except for slight sanguinous engorgement posteriorly."[43]

4. A 27-year-old laborer was transferred from the Pitié Hospital for spontaneous left-sided pneumothorax on 13 July 1824. He died one week later. On admission, respiration on the left side was almost null, but on the right, breathing was "good and practically puerile." Autopsy revealed severe left pneumothorax and extensive bilateral pulmonary tuberculosis.[44]

5. An 18-year-old tailor was admitted for pneumonia in June 1824 and discharged "cured" six weeks later. As the poor breath sounds improved on the affected left side, respiration changed from puerile to excellent to unremarkable on the supposedly healthy right side.[45]

6. A 71-year-old laborer was admitted for left-sided pneumonia on 8 December 1824 and discharged, cured, on Christmas Day. During his illness, puerile respiration was heard over the unaffected lung.[46]

7. A 22-year-old soldier was admitted to hospital in December 1818 in an advanced state of emaciation, despite a voracious appetite and unquenchable thirst. He also suffered polyuria and attacks of respiratory difficulty, although it was noted on two occasions

42. Pierre Commgelle (Ms.), Nantes, Cl. II, f. 272–275.
43. Léonard Charza (Ms.), Nantes, Cl. II, f. 360–361.
44. Christian Neuvenschander (Ms.), Nantes, Cl. III, f. 371, and 388–392.
45. Grolier (Ms.), Nantes, Cl. II, f. 370 recto-verso.
46. Prost (Ms.), Nantes, Cl. III, f. 57 recto-verso.

that "respiration . . . [was] heard very well." Eventually he developed signs of tuberculosis in the lungs and died in March 1819. The autopsy confirmed the presence of bilateral tuberculosis. The possibility of diabetes was entertained, but the final diagnosis was "Boulimia — pulmonary phthisis."[47]

8. A 47-year-old laundress was admitted 28 February 1824 for palpitations, tachycardia, headaches, dizziness, and extreme pallor of the tongue. No other physical findings were made, but it was noted that the "respiration was excellent throughout." She left the hospital in the same condition on 5 May with a final diagnosis of "Back pain? — hypochondria."[48]

9. A 24-year-old seamstress was admitted 1 March 1824 for thoracic pain, palpitations, and amenorrhea of six months duration. Physical examination revealed cardiac murmurs and an abdominal bruit, but no mention was made of her breath sounds. She left the hospital in the same condition on 27 April. The final diagnosis was "amenorrhea — neuralgia of the heart? — hysteria."[49]

Discussion of Cases

Although the laborious method of case selection leaves opportunity for error, it appears that Laennec did not begin using puerile respiration as a clinical sign until May 1824 (case two), in other words, shortly after he lectured on asthma at the Collège de France.[50]

The first case, and the only one entitled asthma, is disappointingly brief (nine lines) and contains no record of physical examination. In cases two, three, four, five, and six puerile respiration was named. Three of these patients had autopsies: two (cases two and three) revealed the side displaying the sign to be healthy; the other (case four) had an opposite pneumothorax. In all three, the pathological changes on the diseased side were so great that the overlying breath sounds would have been diminished or virtually absent. Similar statements, but without autopsy confirmation, could be made for cases five and six.

---

47. Nicolas Herbé (Ms.), Nantes, Cl. I, lot b, f. 159 recto–160 verso.

48. Elizabeth Boileau (Ms.), Nantes, Cl. II, f. 160 recto-verso.

49. Marianne Vicera (Ms.), Nantes, Cl. II, f. 161 recto-verso.

50. In addition to Laennec's own illness of 1819, there was at least one other patient attended prior to 1824 in whom puerile respiration was an incidental finding. This was Antoine Moissonat, who died of abdominal cancer, December 1821, (Ms.), Nantes, Cl. I, lot c, f. 5 recto–7 verso.

Cases two through six displayed louder breathing over one lung with evidence of some pathological organic alteration in the other. In these cases, "extra work" was done by one lung to maintain the *baseline needs* of the whole body. They cannot be used as examples of situations in which Laennec might have construed a generalized increased need of oxygen. But Laennec's puerile respiration was also a sign of asthma, in which he conceived of an *exaggerated need* for air, without organic change. Cases which might correspond to Laennec's asthma would have been dyspneic, but they should not have had lung lesions.

Cases seven, eight, and nine represent the only examples found in the Laennec papers (thus far) that may correspond to his formulation of asthma as non-organic breathlessness. They may have been patients with unrecognized metabolic conditions and, though tenuous, do present the setting of lesionless illness, in which Laennec noted augmented respiratory sounds. The man in case seven certainly suffered from tuberculosis, but some features suggest a secondary diagnosis of diabetes. Both cases eight and nine could be examples of hyperthyroidism. Unfortunately, all three patients were examined prior to May 1824. "Excellent" and "very good" breath sounds were recorded; it is disappointing, but scarcely surprising, that puerile respiration was not named. Would their doctor have described the excellent respiration as puerile had any of these three patients presented after May 1824?

The context in which Laennec formulated his need-response theory can be reconstructed. The sounds may have been absolutely increased in intensity due to the increased depth and rate of inspiration, a well recognized cause of heightened intensity in breath sounds.[51] Laennec may have been aware of this easily demonstrated effect; however, in most of these cases, it is not necessary to postu-

---

51. Statements in this essay pertaining to auscultation and related physiology have been confirmed in one or all of the following: Bates, *Guide to Physical Examination,* 1991; Richard L. DeGowin, *Degowin and Degowin's Bedside Diagnostic Examination,* 5th ed. (New York: Macmillan, 1986); R. S. Hillman, B. W. Goodell, S. M. Grundy, J. R. McArthur, and J. H. Moller, eds., *Clinical Skills* (New York: McGraw Hill, 1981); R. D. Judge and G. D. Zuidema, *Physical Diagnosis: A Physiologic Approach* (Boston: Little and Brown, 1981); Rudolph Kampmeier and Thomas M. Blake, *Physical Examination in Health and Disease,* 4th ed. (Philadelphia: Davis, 1970); Steven Lehrer, *Understanding Lung Sounds* (Philadelphia and London: W. B. Saunders, 1984).

late an absolute increase in sound to explain the findings. Laennec may have "heard" increased breath sounds in the healthy lung, because the ailing lung offered no breath sounds at all. The result of comparing auscultation of the two sides of the chest would be a relative augmentation in respiratory sounds on the healthy side.

For Laennec, however, this apparent increase in respiratory sound reflected increased physiologic work performed by each breath. If one lung was severely compromised by pneumonia, the remaining lung must be doing the work of both to supply the body with oxygen. The healthy lung could be seen as performing "twice the work" of its normal state. Laennec used this physiological "knowledge" or reasoning to explain what he heard and he incorporated it into his definition of puerile respiration.

Puerile Respiration Since Laennec

Laennec was criticized in his own lifetime, often by his supporters, for the subtleties incorporated in his respiratory terminology, but puerile respiration seems to have escaped direct attack.[52] No one denounced the value of the sign; it slowly waned. It was quickly separated from asthma in favor of the more familiar signs of wheezing and decreased breath sounds. With a few die-hard exceptions, most physicians who continued to recognize the existence of puerile respiration did not associate it with asthma.[53]

Hesitant disagreement about puerile respiration as a breath sound came from three influential authors: Josef Skoda (1805–1881), Austin Flint (1812–1886), and Samuel Gee (1839–1911). Skoda tacitly and tactfully rejected this by dropping it altogether and ascribing only four types of breathing to Laennec:

---

52. The nuances of these auscultatory distinctions occasionally defied verbal description. John Forbes once complained that he had translated a French passage without really understanding it. Laennec, *Diseases of the Chest,* 2nd ed., p. 130n. See also, Collin, *Diverses méthodes,* pp. 2–3.

53. Tenacity to this idea might be explained by two unrelated but seemingly connected observations: first, expiration in asthma is prolonged; second, prolongation of the audible component of expiration can result from an increase in the intensity of breath sounds. See Major, *Physical Diagnosis,* p. 146; Alfred Loomis, *Lessons in Physical Diagnosis* (New York: Dewitt, 1868), pp. 37 and 59; Frederick T. Roberts, *A Handbook of the Theory and Practice of Medicine,* 5th ed. (London: Lewis, 1883), pp. 351 and 416.

vesicular, bronchial, cavernous, and puffing. He proposed a further reduction to three types: vesicular, bronchial, and "indeterminate" ("unbestimmte"). Of the latter group he said, "they do not provide us with any information about the state of the parenchyma" and he left it to the astute reader to conclude that puerile respiration was among the indeterminate types of breathing.[54]

Austin Flint cited Laennec's description and physiology, but he went on to qualify its utility. He said that an increase in breath sounds could "only proceed from . . . breathing with greater force than is employed in health" and that, even if the sound did herald the onset of pathological change, its significance was minor in comparison with other signs. Flint was the first in a long series of clinicians to point out potential confusion arising from the difficult distinction between abnormal puerile respiration and its occurrence as a normal variant.[55] Samuel Gee, an admirer of Laennec, commented that puerile respiration implied absolutely nothing more than "louder glottic sounds."[56]

Louder breathing, called "exaggerated," "supplementary," or "increased vesicular" respiration, was given space in manuals on chest disease and auscultation until the mid-twentieth century, often under the specific name of puerile respiration.[57] The term may have persisted because it could be construed to mean "relatively

---

54. Josef Skoda, *Traité de percussion et d'auscultation* [1839], trans. F. A. Aran (Paris: Labé, 1854), pp. 124, 147–148.

55. Austin Flint, *Physical Exploration and Diagnosis of Diseases Affecting the Respiratory Organs* (Philadelphia: Blanchard and Lea, 1856), pp. 177–180.

56. Samuel Gee, *Auscultation and Percussion,* 4th edition (London: Smith Elder, 1893), pp. 113 and 119.

57. Some of these are: George B. Wood, *A Treatise on the Practice of Medicine,* 5th ed., 2 vols. (Philadelphia: J. B. Lippincott, 1858), vol. 2, p. 41; Anon., "Auscultation," in A. Dechambre, ed., *Dictionnaire encyclopédique des sciences médicales* (Paris: Masson and Asselin, 1864), vol. 7, pp. 267–268; Loomis, *Physical Diagnosis,* pp. 37 and 59; Roberts, *Theory and Practice,* pp. 351 and 416; Emil Littré, *Dictionnaire de médecine, de chirurgie, de pharmacie, de l'art vétérinaire et des sciences qui s'y rapportent,* 15th ed. (Paris: Baillière, 1884), p. 1317; George Shattuck, *Auscultation and Percussion* (Detroit, Mich.: Davis, 1890), p. 17; Charles Hilton Fagge, *Textbook of the Principles and Practice of Medicine,* 3rd ed., 2 vols. (London: Churchill, 1981), vol. 1, p. 934; E. Fletcher Ingals, *Diseases of the Chest, Throat and Nasal Cavities,* 3rd ed. (New York: William Wood, 1894), p. 42; E. Cassaët, *Précis d'auscultation et de percussion* (Paris: Doin, 1899), p. 104; Hermann Sahli, *A Treatise on Diagnostic Methods,* trans., Nathaniel B. Potter (Philadelphia: W. B. Saunders, 1916), p. 287; Samuel A. Loewenberg, *Medical Diagnosis and Symptomatology* (Philadelphia: Davis, 1941), pp. 321 and 326; Major, *Physical Diagnosis,* p. 146.

increased," rather than "absolutely louder." It seems to have been understood as an indicator of increased "mechanical" (ventilatory) activity, rather than the enhanced "physico-chemical" function that Laennec had implied. Nevertheless, this increased respiratory "work" was usually linked to an ill-defined notion of compensation for organic derangement elsewhere in the organism.

After the oxygen-dissociation properties of hemoglobin were described in 1904, Laennec's physiological idea of increased oxygen extraction was no longer tenable.[58] The particular arrangements of human hemoglobin and its oxygen-dissociation relationships allow the blood to capture a maximum of oxygen presented to the diffusion surface in the lung at any given time. Therefore, according to our current understanding, oxygen deficiency cannot bring a healthy lung to absorb more oxygen from room air in each breath. Extra work may be done by one lung, but this is not accomplished by a change in the quality of each breath. If a patient is oxygen deficient, the recognized compensatory physiological changes are an increase in the depth and rate of ventilation, an increase in the heart rate, and metabolic shifts in blood chemistry. There is no such thing as a "more perfect" or "more complete" respiration than the normal breath.

There are indeed situations in which the body's "need" for oxygen or for ventilation is increased without lung disease. This is not usually the primary alteration and such a condition would no longer be described in this way. These are the "hypermetabolic" states such as fever and thyrotoxicosis, in which a secondary increase in respiration can occur. The lungs and blood may be performing their usual task of oxygen extraction, but the total amount of oxygen absorbed, or carbon dioxide and heat released, is increased to compensate for derangements elsewhere. In a similar way, metabolic acidosis, such as in diabetic ketoacidosis, can be seen

58. The oxygen dissociation relationship of hemoglobin was described by Christian Bohr, Karl Hasselbalch, and Auguste Krogh in 1904. See John Edsall, "Blood and Hemoglobin: the Evolution of Knowledge of Functional Adaptation in a Biochemical System," *Journal of the History of Biology,* 1972, *5*:205–257.

as a condition "requiring" increased respiration, not for oxygen, but for ventilation and release of carbon dioxide. As in Laennec's asthma, the patient breathes deeply and rapidly and can die suddenly. In none of these metabolic diseases would an autopsy necessarily reveal any gross pathological changes in the lungs. Perhaps Laennec's puerile respiration actually did indicate response to a need for increased breathing and some puerile respiration may have been the kind now ascribed to Adolph Kussmaul (1822–1902).

Conclusion

When one lung was compromised, Laennec detected puerile respiration over the healthy lung because of the relative increase in auscultatory sound. Embedded in his idea of increased efficiency in oxygen extraction was a primitive inkling of the concept of internal gaseochemical homeostasis. His erroneous, but plausible, physiological interpretation dominated his observations. Thus, when confronted with a breathless patient whose lungs and heart were apparently normal, he may have found puerile respiration either because he anticipated it, or because he discounted the effects of increased rate and depth of ventilation. In the end, Laennec seems to have heard puerile respiration over normal lung tissue simply because the patient was dyspneic.

Laennec believed his auscultatory research on asthma had provided an important breakthrough. With puerile respiration, he thought he had discovered a diagnostic sign for asthma, in his opinion, a nervous and "lesionless" condition. It was a demonstration of a non-anatomical method of clinical investigation, inextricably linked to the living patient's physiological state, a state about which the autopsy could provide no information at all. The existence of such a sign was support for his conviction that some diseases did not leave organic lesions. Here was an objective indicator of a physiological change, a "physio-clinical" (rather than "anatomo-clinical") arrow to alteration in the vital principle. As such, it seemed to confirm the existence of the life force.

Paradoxically, the tool he used to make these non-anatomical investigations was his stethoscope, the instrument that had made anatomical medicine accessible to the clinician. Laennec's enthusiasm for the potential value of auscultation in physiology may explain his publication of a curious pamphlet only weeks before the

second edition of his book. In it, he claimed that simple experiments with auscultation had proven certain "new facts": among them, that the "need to breathe . . . is variable, according to age . . . and according to individuals; [and that] the purely physiological augmentation of the need to breathe was sufficient to cause asthma."[59]

That a disease could exist without an organic lesion was not surprising to Laennec, although it was becoming intolerable to his colleagues. In the case of asthma, he found no anatomical lesion, but he did find a sign. Who could argue the existence or alteration of the life force, if such an objective sign had been found? He addressed the following to his opponents, who had ridiculed him for conceiving of lesionless disease:

> But now, even as the doctors are very attentive to this point and while many educated men doubt the possibility of any life-threatening disorder depending solely on a disturbance in nervous influence without serious, primary organic lesions, I have seen many cases in which, in spite of the most meticulous searching, it was impossible for me to find an organic lesion to which asthma could be attributed.[60]

Laennec expected that puerile respiration would make the lesionless, but nevertheless pathological, state recognizable in the living, even when it could not be identified in the dead. It vindicated his stance that a disease did not need to be caused by, or even associated with, a solid organic lesion. It was an indicator of the psycho-neurotic tonus of the individual and the state of the vital principle where, he thought, lay the origin of all disease. It was to become the first step in a new type of clinical physiology, free of the limitations imposed by pathological anatomy and whose equivalent in modern medical practice can only be described as a strange combination of blood gas analysis, basal metabolic rate, and psycho-cybernetics. Elaborated at the end of his career, this important use of puerile respiration was not understood during his life. Since physiological ideas on which it was based no longer hold sway, it was justly forgotten, or never rediscovered, after his death.

---

59. René T. H. Laennec, *Notice des faits nouveaux obtenus par suite des recherches de M. Laennec* (Paris: Feugueray, 18 May 1826), 6 pp., especially p. 5.

60. Laennec, *Traité,* vol. 2, p. 88–89.

Acknowledgments

I am grateful to Professor Mirko D. Grmek for his interest, encouragement, and constructive criticism. Special thanks to Maria Teresa Andrès for her generous help with rare items in the bibliography and to Dr. Dennis E. O'Donnell for advice concerning respiratory physiology and terminology. Part of this research was supported by the Jason A. Hannah Institute for the History of Medicine. All translations from French were made by the author.

History of Medicine
Faculty of Medicine
Queen's University
Kingston, Ontario
Canada K7L 3N6

Elisha Kent Kane, M.D., U.S.N., 1820–1857

JOHN McCLENAHAN

> We have three months before us of intense cold. We have a large and laborious outfit to arrange, boats, sledges, provisions, and accoutrements for a journey of alternating ice and water of more than thirteen hundred miles. Our carpenter is among the worst of our invalids. Supposing all our men able to move, four at least of them must be carried by the rest, three in consequence of amputation, and one from frost-wounds; and our boats must be sledged over some sixty or perhaps ninety miles of terrible ice before launching and loading them.[1]

So, in late May of 1855, ran Dr. Elisha Kane's journal entry. As it proved, only one man was lost on the march. Kane and 15 others would survive a return to civilization across one thousand miles of sinkholes, frozen hummocks, and crevasses, and a voyage of 80 days through drifting ice at temperatures cold enough to freeze mercury.

The commander was a doctor of 35, suffering with his men from starvation, scurvy, and for him alone crippling arthritis and chronic rheumatic heart disease that from the age of 18 had obliged him to sleep sitting up. Despite all these hardships, the above journal entry concluded: ". . . I find our state far from desperate. I cheer my comrades after this fashion . . . ."[2]

When his party stepped ashore in Brooklyn, New York, four months later the scientific world of Europe and America saluted Kane's endurance and heroic leadership. Soon, with the publication of his classic account of the expedition it recognized him as a scientist of genius — explorer, healer, botanist, geologist, meteorologist, anthropologist, artist, and writer. When Kane died 17 months after coming home, the majesty of his state funeral would be eclipsed only by President Lincoln's eight years later.

---

1. Elisha Kent Kane, *Arctic Explorations: The Second Grinnell Expedition in Search of Sir John Franklin, 1853, 1854, 1855,* 2 vols. (Philadelphia, Pa.: Childs and Peterson, 1856), vol. 2, p. 45.
2. Ibid.

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 147-165
© 1991 by The College of Physicians of Philadelphia.

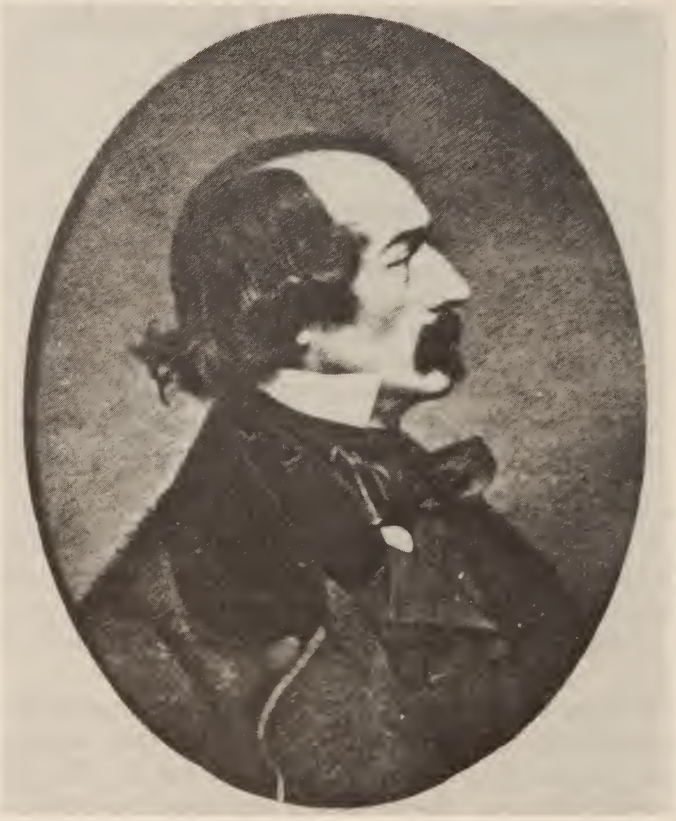

Figure 1. Elisha Kent Kane in 1855 or 1856. Photograph by Matthew B. Brady.

Apprenticeship

Elisha ("El [God] is salvation") Kent Kane was born in Philadelphia on 3 February 1820, the eldest of seven children of Jane and John K. Kane (see Fig. 1). There was patrician blood on both sides — Leiper and Van Rensselaer. John Kane, whom Elisha strove diligently to please, was of Irish descent (O'Cahan or O'Cahane),[3] a scholar and lawyer who, upon graduating from Yale, settled in Philadelphia where he served as attorney general of Pennsylvania

3. George W. Corner, *Dr. Kane of the Arctic Seas* (Philadelphia, Pa.: Temple University Press, 1972), p. 6.

and as a U.S. District judge. He was a conservative Presbyterian with strong political connections in Washington, D.C.

As a child Kane was a haphazard student, applying himself when interested, but indifferent to the standard curriculum. At the age of 16 he entered the University of Virginia with the hope of becoming a civil engineer, but abandoned the project when his health failed in his first attack of rheumatic fever. Following a brief convalescence, Kane entered the medical school of the University of Pennsylvania. On completing a single course of lectures he was appointed assistant resident physician at Philadelphia (Blockley) Hospital, where a superior would write that Kane's "health was delicate . . . he was laboring under a serious affection of the heart — dilatation with valvular disease . . . accompanied by the most tumultuous action of the heart from any violent exertion . . . I have always thought the uncertain state of his health had a good deal to do with his subsequent course of life, and the almost reckless exposure of himself to danger . . . He was an habitual student."[4] A study of a urinary constituent that Kane conducted at that time was so highly regarded by the faculty that his report, "Experiments on Kiesteine With Remarks on its Application to the Diagnosis of Pregnancy," was published in the *American Journal of Medical Sciences*.[5] He graduated in 1842 at the head of his class.

At his father's urging Kane applied for service in the U.S. Navy and in 1843, in spite of known physical constraints, was commissioned an assistant surgeon. Opportunities for adventure loomed at once. Before his reputation was established in the Canadian Arctic, for eight years Kane travelled all over the world and in every climate: an apprentice explorer, ever industrious, frequently reckless, patiently documenting what he saw and felt.

Following China's Opium War of 1837–1842, Hong Kong and five other coastal cities were ceded to the British as treaty ports. Other governments hotly pursued new markets now opening, while President John Tyler proposed to further America's claims in the Orient with a so-called diplomatic mission: a fleet of four warships armed with two hundred guns. Means were found for Kane to join the cruise on the frigate *Brandywine* as an unsalaried physician. He was privileged to range about on his own, studying navigation,

---

4. William Elder, *Biography of Elisha Kent Kane* (Philadelphia, Pa.: Childs and Peterson, 1858), pp. 40–41.

5. Corner, *Dr. Kane*, p. 31.

mathematics, and climatology in settings as exotic as the Andes, Bombay, Macao, and the Philippines. Near Manila he nearly lost his life in a descent, imprudently undertaken on a bamboo rope, to the edge of a lake in a volcanic crater. He was overcome by the heat and sulfur fumes before being hauled to the rim in a state of collapse but with every specimen intact.

Kane returned to China, and after resigning his post with the commission, fell seriously ill, perhaps with cholera. For a time he languished in one of his periodic depressions, before leaving for America. Unfortunately his accounts of adventure in Singapore, Borneo, Ceylon, the Himalayas, and Persia were lost in a boating accident, but by April 1845 we find him on the Nile en route to Luxor. At Karnak he was overcome by emotions similar to those that had moved Napoleon's troops to present arms on first viewing the colonnades. He wrote to his father of his wonder, carrying him almost to the point of fainting, at the sight of these colossal ruins.

During this junket his letters home reflect an emerging style that is clear, lyrical, sometimes whimsical, and always strong. Even his formal reports were a pleasure to read, peppered with lively turns of phrase. In the Arctic he spoke of the "ludicrous miseries of shipboard life," and clothing so frozen that "he picked his teeth with his handkerchief."[6]

A summary of his adventures in Egypt and on his way back to America would include: a rescue by his guide in the Valley of the Kings as he hung helpless, suspended from the airy lap of a monstrous statue; a wound in the leg from a marauding Bedouin; a camel ride of 70 miles across the desert; a near fatal attack of debilitating fever ("plague?") in Alexandria; a five thousand foot ascent of Mount Helicon in Greece; and excursions through the Alps, Spain, and Paris.

He arrived in Philadelphia in the late summer of 1845, 25 years old, slim, in fragile health, but overflowing with accounts of his adventures. He made plans to open an office on Walnut Street while indulging himself in the glades of his parent's suburban estate, "Rensselaer," and on its garden escarpment, "Fern Rock." These were names he would scratch on maps of Arctic wilderness.

Perhaps to his relief, his plans to practice medicine in Philadelphia were interrupted by the Mexican War. In spite of a distaste for

---

6. Elisha Kent Kane, *The U.S. Grinnell Expedition in Search of Sir John Franklin: A Personal Narrative* (New York: Harper and Brothers, 1853), p. 262.

sea duty — perpetual seasickness and, in four years, not a penny in wages from the Navy — he saw in the war a chance for further travel and service as a junior surgeon. Correspondence however, between his father and George Bancroft, secretary of the Navy, yielded nothing but an invitation to serve on the frigate *United States* about to sail for West Africa. Kane's accounts of a dreary voyage to the Cape Verde Islands and West Africa tell of little but the slave trade and an attack of malaria that sent him home sick, despondent, and more eager than ever to join the fighting in Mexico.

In October 1847 opportunity came in a cloak and dagger venture proposed by no less a person than the President of the United States, James K. Polk. After taking Mexico City, General Winfield Scott had unaccountably failed to respond to orders from Washington, and it was known that a detachment of his men were under siege at the town of Puebla. Kane set out with the President's confidential new orders for General Scott, but near Puebla his horse was killed in a skirmish with guerrilla troops and he suffered a lance wound of the bladder. He was carried to the hacienda of a chivalrous Mexican officer where his prolonged recovery was complicated by a spell of what was thought to be typhus fever. His message was never delivered; General Scott was relieved of his command and Kane returned home to convalesce.[7]

Sir John Franklin

For many years scientists had wondered about the fate of Sir John Franklin, a British explorer who in May 1845 sailed across the Atlantic Ocean with two ships, *H.M.S. Erebus* and *H.M.S. Terror,* in search of a northwest passage to the Pacific Ocean. A whaler spotted him the following year in Baffin Bay, moored to an iceberg; he had not been seen again. By 1848 three search expeditions had been forced to turn back without finding any trace of his party.

Sir John's wife, Lady Jane, had not given up hope. A woman of exceptional persistence and considerable fortune, she continued her tireless appeals to the Admiralty, the scientific community, and President Zachary Taylor to continue the search at whatever cost. Money was not at once forthcoming from the United States government but her pleas moved Henry Grinnell, a New York shipping magnate, to offer funds and two ships. In Washington, prospects

7. Corner, *Dr. Kane,* p. 66.

brightened at once. Kane learned of the project and in 1850 hastened to New York from Alabama, arriving in seven days — record time for such a trip.

The expedition was under the command of Lieutenant Edwin J. De Haven, U.S.N., an experienced mariner 34 years old. Twelve years previously as navigator of the *U.S.S. Vincennes* he had explored the Antarctic with the pioneer voyager Charles Wilkes. As an enthusiastic collaborator with Grinnell, he was a principal instrument in prevailing upon Congress to authorize and the Navy to lend them supplies, volunteers, and official orders. As it proved, this would be De Haven's only journey to the far north, but Kane repeatedly attests to his extraordinary judgment and leadership. Now, together in New York, within five days the two found, scrounged, and assembled a full Arctic wardrobe and supervised the loading of their two "hermaphrodite brigs" (square rigged forward, schooner-rigged aft), the *Advance* (144 tons) and the *Rescue* (91 tons). Kane paid tribute to the "zealous aid of Mr. Grinnell . . . and . . . the ladies who busied themselves in sealing up air-tight packages of fruit-cakes . . ." for the delectation of the crew.[8] On the 22 May 1850 the ships departed Brooklyn to cheers and hurrahs from well-wishers on the Battery.

The voyage was viewed as an exploration of two mysteries: the search for Sir John Franklin, and a hoped-for discovery of the "Open Polar Sea." From as far back as Ancient Greece, legends told of a navigable ocean in the far north. By the sixteenth century, in spite of accounts of impenetrable ice barriers in the Arctic, scholars believed that an Open Polar Sea, a vast *polynia* of the Russian fur traders, lay above the ice barrier, a shortcut to Asia. Oceanographers deduced its existence from studies of currents and their theories were supported by accounts of bird and animal migrations from Canada northwards, bound, presumably, for a genial climate. It was hoped that Sir John had reached this waterway, isolated but nourished by abundant game.

Kane described his 16-month voyage in his first book, *The U.S. Grinnell Expedition in Search of Sir John Franklin: A Personal Narrative.* It is an epic of anguish and achievement. We learn that from the very beginning hasty preparations led to grim eventualities. The decks of the ship leaked; Kane was perpetually seasick and cold — stoves, packed so deeply in the hold, could not be put to

8. Kane, *Grinnell Expedition,* p. 18.

use; and the crew was scruffy and nondescript. But they persisted. Off the coast of Newfoundland, Kane saw his first iceberg, "a great mass of whiteness floating in the sunshine . . . about twice as large as Girard College."[9]

From Greenland the ships sailed northwest, presuming that Sir John Franklin had followed such a course. Above Baffin Island, beset by snowstorms and the menace of drifting ice, they turned west into Lancaster Sound and by September were ice-locked in Wellington Channel, a narrow passage in the archipelago. Here, for nine months, both crews were quartered on the *Advance* five hundred miles above the Arctic Circle in a frozen Sahara of unrelenting hostility. As winter wore on, the ships drifted nine hundred miles south and east in the ice pack to a thaw and a release in June at the lower end of Baffin Bay. A simplified chart indicates their course (see Fig. 2).

In these lonely months Kane achieved an astonishing maturity, writing of hardship, discovery, and pleasure with a sage's perception and a novelist's grace. Samples of his prose must suffice, with one or two specimens appended from his second voyage in the interests of continuity.

> [*Living Quarters*:] Within a little area, whose cubic contents are less than father's library, you have the entire abiding place of thirty-three heavily-clad men. Of these I am one. Three stoves and a cooking galley, four Argand and three bear-fat lamps burn with the constancy of a vestal shrine. Damp firs, soiled woolens, cast-off boots, sick men, cookery, tobacco-smoke and digestion are compounding their effluvia around and within me. Hour by hour, and day after day, without even a bunk to retire to or a blanket curtain to hide me, this and these make up the reality of my home.[10]
>
> [*Food*:] We are living luxuriously. Yesterday our French cook, Henri, gave us a salmi of Auks, worthy of the *Trois Frères*: and today I enjoyed an Arctic imitation of a trussed partridge. Bear is strong, very strong, and withal most capricious meat; you cannot tell where to find him . . . . Seal is not fishy but *sealy*; and with a little patience and a good deal of *sauce piquante* is very excellent diet . . . . Seagull is worthy of all honorable mention. The *filet* of a large Ivory one is a

9. Ibid., p. 27.
10. Ibid., p. 301.

Figure 2. Course of the first Grinnell Expedition, 1850–1851. The straight lines and arrows indicate the passage from Baffin Bay into Lancaster Sound as far as Wellington Channel, then ice-locked; the wavy line indicates the drift through ice back to Baffin Bay and Davis Strait. Courtesy of the Mütter Museum, College of Physicians of Philadelphia.

morceau between a spring chicken and our own unsurpassed canvas back.[11]

[*The Cold*:] Now let us start out upon a walk, clothed in well-fashioned Arctic costume. The thermometer is, say, -25 degrees, not lower, and the wind blowing a royal breeze, but gently.

Close the lips for the first minute or two, and admit the air suspiciously through nostril and mustache. Presently you breath in a dry, pungent, but gracious and agreeable atmosphere. The beard, eyelashes and the downy pubescence of the ears, acquire a delicate white, and perfectly-enveloping covering of venerable hoar-frost.

The mustache and under lip form pendulous beads of dangling ice. Put out your tongue, and it instantly freezes to this tiny crusting, and a rapid effort and some hand aid will be required to liberate it. The less you talk, the better. Your chin has a trick of freezing to your upper jaw by the luting aid of your beard; even my eyes have been glued, as to show that even a wink may be unsafe. As you walk on, you find that the iron-work of your gun begins to penetrate through two coats of woolen mittens, with a sensation like hot water.[12]

[*Clothing*:] Rightly clad, he is a lump of deformity waddling over the ice, unpicturesque, uncouth, and seemingly helpless. It is only when you meet him covered with rime, his face peering from an icy halo, his beard glued with frozen respiration, that you look with intelligent appreciation on his many-coated panoply against King Death.[13]

[*Nature*:] Shrubs and trees! The words recall a smile, for they only typed those natives of another zone. The poor things had lost their uprightness, and learned to escape the elements by trailing along the rocks. Few rose above my shoes, and none above my ankles; yet shady alleys and heaven-pointing avenues could not be more impressive examples of creative adaptation. Here I saw the bleaberry [Vaccinium uliginosum] in flower and in fruit: I could cover it with a wine-glass; the wild honeysuckle [Azalea procumbens] of our Pennsylvania woods; I could stick the entire plant in my button hole.[14]

[*Wonder*:] The moon is nearly full, and the dawning sunlight, mingling with hers, invests every thing with an atmosphere of ashy gray . . . . It is a landscape such as Milton or

11. Ibid., p. 129.
12. Ibid., p. 261.
13. Kane, *Arctic Explorations,* vol. 1, p. 22.
14. Kane, *Grinnell Expedition,* p. 143.

> Dante, might imagine — inorganic, desolate, mysterious. I have come down from deck with the feelings of a man who has looked upon a world unfinished by the hand of its creator. [15]

Accounts in his first book deal principally with techniques of survival and survey trips across the ice, weather observations, botanical commentaries, and the life of the Eskimos. Ever on the alert for new types of vegetation, he tells on his subsequent voyage of collecting 22 specimens of flowering plants while helping to drag his ship three miles along the coast.[16]

There were always the sick to be treated. During both of his voyages, Kane assembled enough reports of Arctic mental and physical maladies to fill a book. Snow blindness was a constant hazard to men and dogs; its bleaching effects on the retina were fortunately reversible. Severe depression touched everyone during the months of darkness, complicating the stress of crowded quarters and even distressing the dogs, who showed signs of nervous derangement. Frostbite cost many of the company their toes, and for one crewman half of a foot that had to be amputated in the field. On a diet of hard tack, salt pork, and stale potatoes, men dreamed of exotic fresh fare — ham, and fresh vegetables. General malnourishment undermined them; the crippler was scurvy.

The first signs of the disease among the crew appeared in December 1850, six months out, in the shape of swollen and bleeding gums, transient pneumonia, joint pain, loss of appetite, and torpor. It killed many of the dogs. Kane employed conventional remedies — raw potato, cabbage, sauerkraut, fresh game whenever available, a little beer, enforced exercise, and lime juice.

This situation is puzzling. One hundred years earlier James Lind, a Scottish naval doctor, had demonstrated the dramatic benefits of lime juice in preventing scurvy. Long before that Dutch mariners had known the value of citrus fruits as anti-scorbutics. It seems odd that Kane's patients suffered so grievously, so consistently, over several years when his provisions included lime juice. We can only presume that he did not know how effective the juice was or that the containers in which it was stored, or the preservatives mixed in with it, diminished its potency.[17]

---

15. Kane, *Arctic Explorations*, vol. 2, p. 56.
16. Corner, *Dr. Kane*, p. 138.
17. John Norris, "The 'Scurvy Disposition': Heavy Exertion as an Exacerbating Influence on Scurvy in Modern Times," *Bulletin of the History of Medicine*, 1983, *57*:325–338.

In June 1851 the ice thawed and the ships floated free. After cruising about for a time, the men refreshed themselves in Greenland villages and, finding routes to the north impassable, sailed for home. Upon arriving in New York, Kane at once began to make plans for a return trip.

No one had yet proved or disproved the existence of the Open Polar Sea. Lady Franklin was not yet willing to accept the loss of her husband — nor was the British government — despite some ominous discoveries by Kane and De Haven. In 1850, on an island in the Wellington Channel, they had come upon burial headboards dated 1846 marking the graves of three of Franklin's crewmen. Close by they found the remains of shelters, fragments of wood, brass, and clothing.

Now the British proposed an even more intense search and in a personal interview with Kane, John P. Kennedy, secretary of the U.S. Navy, expressed sufficient interest in the project to assure Kane access to Navy equipment and, for the first time, full pay. Plans rapidly took shape for a joint expedition under the auspices of learned societies, private investors (Grinnell), and the Naval Observatory. Kane contributed his salary, book royalties, and lecture earnings for the year. In May 1853, he sailed for Greenland in command of the brig *Advance* and a crew of 17 men, including two veterans of his first expedition. Adventure bound, he was leaving behind a love story bizarre beyond reckoning.

Margaret Fox

Margaret Fox was raised on a farm near Rochester, New York. At the age of 13 she began to receive messages from the spirit world, delivered as knockings during the night. It was thought that one of these had led to the solution of a murder case. Leah, her older sister and a gifted promoter, took Margaret and their mother on tour where their performance, charm, and credibility attracted wide notice. Among those impressed was the journalist Horace Greeley. At first he was skeptical but was then deeply moved when his dead son knocked in response to Margaret's conjuring.

In November 1852 Kane spied Margaret through a hotel window in Philadelphia. He called on her at once and according to her subsequent account (ghost written, as seems appropriate), the doctor fell in love at first sight. He called again next day and set the tone for a volatile courtship by informing her that he considered

her spiritual claims fraudulent. Then, urging her to repent her charlatanism, he proposed marriage in tones suggesting an ultimatum. Religious considerations loomed — she was a Methodist and he a Presbyterian curiously bent, for reasons unknown, on persuading her to embrace Catholicism. She accepted his proposal, but with a certain reserve. A long correspondence followed. His letters, published in her book and apparently authentic, are admonitory and suffocatingly pompous. In May of 1853, just before sailing, he persuaded her to attend a school in the bosks of rural Pennsylvania near the home of his aunt.[18]

The Second Voyage

The *Advance* stopped in Greenland to pick up supplies. Then, beating against wind and ice, the ship narrowly escaped being wrecked as mooring lines were snapped in a gale. She continued northward through ice, tracking (the crew towing the ship like mules on a towpath) and warping (anchoring on ice and taking up with the capstan) mile after mile (see Fig. 3). By late August it was clear that cold weather was arriving early. The crew considered turning back but Kane persuaded them that it would be better to lay by and spend the winter sheltered in "Rensselaer Harbor," a cove on the northwest coast of Greenland about 80 miles below the magnetic North Pole. This would be Kane's refuge for 21 months and the ship's final anchorage.

As the weather grew colder, problems of space and morale multiplied with 20 men and 50 dogs crowded into living quarters equivalent to those of an ocean-going tug. Kane was new to command, faced with insubordination and threatened mutiny that obliged him to detain one crewman in solitary confinement. Many of the dogs were untrained, famished, and unruly; nine Newfoundlands and 35 Huskies died that winter. Scurvy was rampant. Fire broke out below decks, and rats scurried through the hold.

Kane kept busy reconnoitering and laying down provision depots to the north. He states that he was able to cover 20 to 30 miles a day on foot with no great difficulty — one of his exploratory parties slogged north to a latitude of 79 degrees, 50 minutes, and returned with accounts of a monstrous glacier that Kane named for Baron von Humboldt. He carried on with calisthenics, football, and

18. Corner, *Dr. Kane*, p. 123.

Figure 3. Course of the second Grinnell Expedition, 1853–1855. The solid line and arrows indicate the course of the *Advance* to Smith Sound (Rensselaer Harbor) and the party's return to Upernavik. The dotted line indicates Sir John Franklin's presumed earlier course to Devon Island, Prince of Wales Island, and King William Island.

regular prayers. There was no want of entertainment — readings from *David Copperfield,* a fancy dress ball, and a newspaper. By March the temperature hovered at 46 degrees below zero, the frozen fresh meat was gone, and only one barrel of potatoes was left. But the sun came up at last and now it was time to look for the Polar Sea, by land if necessary and without dogs. Men would have to drag the sledges and a boat over a route to the west and north to Ellesmere Island, an unexplored shore 70 miles away. Undertaken early or late, the plan carried high risks; before leaving, one crewman demanded Kane's written order to proceed.

The plan failed disastrously. Two men died and the rescue party that Kane personally led barely made it back to the brig, delirious and demented after a 72-hour trek of 80 miles out and back. An officer waiting on the ship reported that before collapsing Kane cried out, "Call all hands to lay aft and take a reef in the stovepipe."[19]

In June on a trip north one of Kane's companions made a freakish discovery. At a latitude of 81 degrees, 22 minutes, the uppermost parallel achieved by white men, he reported "open water extending to the northern horizon" where "their ship could have sailed on calm water perhaps five hundred miles away."[20] He brought back specimens of vegetation from the shore and accounts of sea birds nesting close by. Was this the Open Polar Sea at last? Kane was sufficiently impressed to claim the discovery in one of his preliminary reports to the Navy. The marvel was never explained. Was it a mirage? Twentieth-century explorers suggest it was a transient stretch of open water, the result of capricious winds and current.

Summer passed and the ice never melted — by August the *Advance* had been trapped for 11 months. To the south, the only hope of escape to Greenland lay over miles of unbroken ice and it was getting colder. Now a starved crew faced the prospect of a second winter in the Arctic. With the worst scenario in mind they set up a cairn on a headland sheltering documents dated 14 August 1854 and the graves of two crewman who had died. The bleak announcement "ADVANCE A.D. 1853–1854" was spelled out on a rock.

---

19. Ibid., p. 154.
20. Ibid., p. 167.

On 28 August, with Kane's reluctant permission, seven discontents elected to leave the ship and move south. They were given a share of the supplies and told they could return if necessary — which they did, half dead, three months later after walking 350 miles and surviving with the help of Eskimos. During their absence Kane made the ship's cabin as weatherproof as possible with techniques borrowed from the Eskimos. He caulked the deck of their 18-foot cabin with oakum, and lined it and an approach tunnel with moss and turf from the rocks. His men laid in emergency fuel — planking ripped loose from the deck and bulwarks, chopped up lockers, shelving, and chunks of frozen hawser.

By November their supply of food was down to little more than flour, salt pork, beans, dried apples, and three ptarmigans. Kane pronounced his soup made from rats in the hold "palatable and nourishing."[21] They ate one of the pups of a litter; several ailing members expressed thanks for a puree of codfish skins. A fox or two and a couple of rabbits sustained them and at the last minute, miraculously, a hunter returned with a slab of walrus meat. While outside temperatures fell to 69 degrees below zero, the crewmen slept for hours in a cabin 45 degrees warm. By March everyone lay in their bunks, suspended in "a half-remembered dream."[22]

After grappling with the moral implications of abandoning his ship, Kane decided to attempt escape on a dash to the south. He gutted the cabin for fuel. Food, kettles, the sick, and three boats were mounted on sledges and on 20 May 1854 he mustered his crew for prayers and words of encouragement: "I did not affect to disguise the difficulties that lay before us . . . and that the thirteen hundred miles of ice and water that lay between us and north Greenland could be traversed with safety for most of us and hope for all."[23] Six dogs and 17 men scrambled off over the ice together, so weak and their loads so heavy that, all hauling together, they could only advance one sledge, return, and drag the other to catch up — three miles travelled for each mile forward.

But their luck improved. Food caches laid down two years before were found intact and, amazingly, the sick men got better. Eskimos helped them with food. Though one of the haulers, a Danish carpenter, died accidentally, by mid-June the others had

---

21. Ibid., p. 185.
22. Ibid., p. 153.
23. Kane, *Arctic Explorations,* vol. 1, pp. 177–178.

reached open water. On 6 August, after six weeks of storms and occasional swampings they paddled into the Greenland hamlet of Upernavik. Kane wrote that after 84 days in the open air "we could not live within four walls without a distressing sense of suffocation."[24] In Upernavik they learned to their sorrow that relics of Sir John Franklin's expedition had been found on the coast of King William Island by Eskimos, one thousand miles to the south of where they had been searching.

A month later Kane sailed from Upernavik with his crew and two favorite dogs. A few days later they chanced to make contact with the American relief ship *Release,* carrying Kane's brother John. On 11 October 1855 the party landed in New York. "Come into the parlor," Henry Grinnell said to Kane, "and tell us the whole story."[25]

Elisha Kent Kane died after a year and a half of universal acclaim and deteriorating health. He was honored with gold medals, interviews, and lecture tours to enraptured audiences. His book *Arctic Explorations: The Second Grinnell Expedition in Search of Sir John Franklin, 1853, 1854, 1855,* a commercial success, was written under pressure that exhausted him. He went to England hoping to find better health, but instead became dispirited by constant fog. Lady Franklin's importunings and a frantic social schedule did not help matters. Perhaps, he thought, Cuba would offer warmth and recovery. On arriving in Havana he was carried ashore with fever, swollen joints, and shortness of breath. He succumbed to a stroke on 10 February 1857, presumed secondary to endocarditis.

Citizens lined the railroad tracks to watch his funeral train's slow journey from New Orleans to Philadelphia. Home at last, to the accompaniment of muffled drumbeats under a light rain, he was carried to Independence Hall where he lay in state for three days. A cortege and guard of honor escorted him to the Second Presbyterian Church and a crypt on Laurel Hill Cemetery.

Epilogue

Elisha Kent Kane was just one of a constellation of daring and dynamic figures, both living and fictional, of the 1850s — romanticists all: Florence Nightingale, Lohengrin, Captain Ahab, P. T. Barnum, David Livingstone, Uncle Tom, Thoreau and, conspicuously,

24. Ibid., p. 294.
25. Corner, *Dr. Kane,* p. 224.

Figure 4. U.S. Postal stamp of Elisha Kent Kane, from the Arctic Explorers Series. Courtesy of the Mütter Museum, College of Physicians of Philadelphia.

Sir Richard Burton, whose idiosyncracies and derring-do remarkably mirror Kane's. Lord Tennyson, a poet Kane loved, best understood this romantic fever, this throbbing idealism:

> Launch your vessel
> And crowd your canvas
> And, ere it vanishes
> Over the margin,
> After it, follow it,
> Follow the Gleam.[26]

Margaret Fox died in 1893, still practicing as a spiritualist medium. Probably during the second Grinnell expedition Kane decided against marriage, perhaps on account of his family's opposition to the union. In her book *The Love Life of Dr. Kane,* published in 1866, and virtually the only documented account of their romance, she claimed that they were legally and privately wed in the presence of witnesses before he left for England.[27] She was not mentioned in his will and her efforts to collect a widow's dower failed after years of litigation.

In 1854 John Ray, of the Hudson Bay Company, while exploring King William Island in search of Sir John Franklin, purchased from natives pieces of silverware bearing the initials of officers, including Franklin, of the *Erebus* and *Terror.* Franklin's records and body were never recovered. In *Frozen in Time: Unlocking the Secrets of the Franklin Expedition,* Owen Beattie and John Geiger report their autopsy findings on three of Franklin's men exhumed from the permafrost on Beechey Island.[28] They offer convincing evidence that the men died of lead poisoning, perhaps contracted from imperfectly sealed food cans, and conjecture that Sir John's ship was trapped off King William Island for 19 months and, that in the end, struggling southward, the crew died one by one after being reduced to cannibalism.

There were ample tributes to Kane, both literary and tangible. Thoreau mentions him in his journals. In *Le Désert de Glace* Jules Verne fictionally sailed his ship, the *Forward,* through the northern

---

26. *The Complete Poetical Works of Tennyson* (Boston, Mass.: Houghton Mifflin, 1898), pp. 550–551.

27. Anonymous [Margaret Fox], *The Love Life of Dr. Kane Containing the Correspondence, and a History of the Acquaintance, Engagement & Secret Marriage Between Elisha K. Kane and Margaret Fox* (New York: Carleton, 1866), p. 271.

28. Owen Beattie and John Geiger, *Frozen in Time: Unlocking the Secrets of the Franklin Expedition* (New York: E. P. Dutton, 1988), pp. 59–60.

ice pack into an open sea, warmed by a volcano.[29] Kane's name is engraved on a United States postal stamp (see Fig. 4) and the bow of a United States Navy survey ship. Perhaps the tribute that would please Kane most would be a current chart of the near side of the Moon, where his name appears on a crater 34 miles across — a day's walk — just below the lunar north pole.

535 Telner Street
Philadelphia, PA 19118–4227

29. Corner, *Dr. Kane*, p. 270.

Rising Stars: Carl G. Jung and Astrology

FRED B. ROGERS

Swiss psychiatrist Carl G. Jung was interested in astrology, the ancient art of divining future events, especially the fates of human beings, from the positions of the stars. Jung sometimes employed horoscopes as a means of initiating discussion with patients in analytical psychology sessions. A horoscope based upon the relative order of planets and signs of the zodiac was diagrammed to possibly foretell events of a person's life. Jung defended his use of this archaic lore and method by writing as follows:

> We are born at a given moment, in a given place and, like vintage years of wine, we have the qualities of the year and of the season in which we are born. Astrology does not lay claim to anything more.[1]

Astrological markings are as old as recorded history. Arrangement of the stars changes from year to year, hemisphere to hemisphere, and season to season. Past peoples believed in the relationships between the sun, moon, and stars, just as these signs are followed by many today. At the popular level an estimated 40 million Americans turn to the horoscope page daily in the newspapers. The volume of astrological literature on sale at newsstands and bookstores is impressive. Young people may delay their weddings until the zodiac is favorable. Some surgeons, following an ancient dictum, are reluctant to perform surgery during a full moon; folklore claims that hemorrhaging is more likely to occur. Jung's interest in astrology was chiefly responsible for the present drawing-together of astrology and psychology. Courses in astrology are now offered up to and within university studies. Psychotherapists, following Jung's lead, occasionally incorporate astrology into their deliberations. Many hope that astrology, though deemed a pseudoscience, contains germs of truth.[2]

---

1. Carl G. Jung quoted in Marshall Cavendish, ed., *Man, Myth & Magic: An Illustrated Encyclopedia of the Supernatural* (London: B. P. C. Publishing, 1971), p. 156.

2. Born under the sign of Leo, Jung's assertive intellectual curiosity appeared to fit that astral category. Bernard Rosenblum, *The Astrologer's Guide to Counseling: Astrology's Role in the Helping Professions* (Reno, Nev.: C. R. C. S. Publications, 1983).

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 167-171
© 1991 by The College of Physicians of Philadelphia.

Figure 1. Pen-and-ink likeness of Carl G. Jung. Courtesy of Princeton University Press.

Centuries ago a physician would cast a patient's horoscope as routinely as a modern doctor measures one's blood pressure. Astrology and medicine were intermingled; a birth chart cited temperament and tendencies to certain illnesses, and parts of the body were linked with the twelve signs of the zodiac. Carl Jung used birth data to help reconstruct a person's character and life-style. A natal chart, he said, linked one to cosmic forces via planetary positions and temporal affairs. To this end he noted:

> Science began with the stars, and mankind discovered in them the dominants of the unconscious, the "gods" as well as the curious psychological qualities of the zodiac, a complete projected theory of human character.[3]

Dr. E. A. Bennet, Jung's British biographer, recorded the following conversation in regard to matters astrological:

> At breakfast he spoke of astrology (one of his daughters is interested in it), and of a German book in which he is criticized

3. Carl G. Jung, *Psychology and Alchemy,* vol. 12 in *The Collected Works of C. G. Jung* (New York: Pantheon Books, 1953), p. 77.

> for giving support to horoscopes. One author wrote to him saying that it could not be proved, it was all nonsense; and he had replied, "But I have always known this . . . . Of course it can't! What I want to know is why it works, for it is amazing how useful it can be . . . . Naturally we can't always prove things. But there may be some other sort of truth; and it may be true on a basis we don't know of. So if we are reasonable we say we don't know how it works; but it can certainly give astonishing insight into character."[4]

In her book *Astrology for Adults,* American astrologer Joan C. Quigley states that "Carl Jung was interested in astrology and wrote a study comparing the charts of married couples." She continues:

> It is well to remember that astrology can best be compared to medical diagnosis. The astrologer relies on the computations of the astronomer in the same way a doctor bases his conclusions on the findings of the laboratory technician. In this sense astrology, like medical diagnosis, is an art. And, like the doctor, the astrologer can refer to case histories recorded from ancient times down to the present day to guide him in his work.[5]

Traces of astrology are in our language; from past astrological associations we recall the varieties of human temperament dubbed saturnine, jovial, mercurial, or martial. Using Jungian psychology, the horoscope can be interpreted in terms of Jung's four personality types — thinking, feeling, sensation, and intuition. In the zodiac each "house" or sign and the planetary positions are related; for example, Moon with mother and Sun with father, Mars and Venus with the psychic animus (the unconscious male tendencies in women) and anima (the unconscious female tendencies in men), Jupiter with emotional balance, and Saturn with the shadow (the dark aspects of the unconscious mind). In his book *Jungian Birth Charts: How to Interpret the Horoscope Using Jungian Psychology,* Arthur Dione wrote "astrology is about daily living, here and now . . . . Both depth psychology and its older sister astrology point to the real selves trying to get out and finally see the light of day."[6]

---

4. Eveline Bennet, ed., *Meetings with Jung: Conversations Recorded During the Years 1946–1961 by E. A. Bennet* (Zurich: Daimon Verlag, 1985), p. 39.

5. Joan C. Quigley, *Astrology for Adults* (New York: Holt, Rinehart, and Winston, 1969), pp. 2–3.

6. Arthur Dione, *Jungian Birth Charts: How to Interpret the Horoscope Using Jungian Psychology* (Wellingborough, England: The Aquarian Press, 1988), p. 7.

The term "archetype" was applied in depth psychology by Jung to "primordial images," the "psychic residue" of repeated types of experience in the lives of our primitive ancestors which, he claimed, are inherited in the "collective unconscious" of the human race and are expressed in myths, religion, dreams, and fantasies, as well as in literary compositions. Great personalities, such as Goethe and Napoleon, have been convinced that the constellation under which they were born has exerted a great influence on their destinies.[7]

Concerning possible astrological influences on how a person behaves or misbehaves, Jung wrote thus about dream content found upon burrowing down into the collective unconscious:

> An infallible sign of collective images seems to be the appearance of the "cosmic" element, i.e., the images in the dream or fantasy are connected with cosmic qualities, such as temporal or spatial infinity, enormous speed and extension of movement, "astrological" associations, telluric, lunar, and solar analogies, changes in the proportion of the body, etc . . . . The obvious application of mythological and religious motifs in a dream also points to the activity of the collective unconscious. The collective element is very often announced by peculiar symptoms, as for example by dreams where the dreamer is flying through space like a comet, or thinks he is the earth, or the sun, or a star.[8]

Jung's concern with time, sidereal and otherwise, led to his originating the concept of synchronicity or meaningful coincidence. Psychologist Sir Cyril Burt explained this notion succinctly in these words:

> Jung made a couple of brief statistical studies to check predictions drawn from astrological horoscopes, and believed that on the whole the results confirmed them; but he fully recognized that his methods were too simple to carry conviction. Partly to explain the way in which celestial phenomena might affect human life, he put forward what he called the "principle of synchronicity." Natural science has commonly treated causation as the supreme explanatory principle; and causation implies temporal succession. However, events that are not successive but simultaneous may, he maintained, also be con-

---

7. Warren Kenton, *Astrology: The Celestial Mirror* (New York: Thames and Hudson, 1989), p. 31.

8. Carl G. Jung, *Two Essays on Analytical Psychology* (New York: Meridian Books, 1956), p. 170.

> nected in a manner which appears intuitively meaningful. This supplementary principle would furnish an explanation of such paranormal phenomena as telepathy and clairvoyance — examples of which he quotes, not only from the literature of psychical research, but also from his own experience.[9]

The American philosopher Ralph Waldo Emerson, whose life overlapped that of Jung by several years, advised seekers to "hitch your wagon to a star." Rising stars, he said, can move one upward at an amazing rate. As to the role of astrology in human character and potential, Emerson concluded that, "crabs, goats, scorpions, the balance and the waterpot lose their meanness when hung as signs in the zodiac . . . . Astrology is astronomy brought to Earth and applied to the affairs of men."[10]

Emerson's quote reminds us that the horoscopes we face in newspapers and other popular periodicals are often "rising stars" — that is, they are usually benign and encouraging. Even without the sophisticated or complex view of our star charts Jung so valued, we can see that horoscopes may make living more bearable by temporarily relieving one of concern about today and the future. The stars foretell but do not compel. Imagination exerts a beneficent influence in astrological psychology. The horoscope art, ancient yet modern, leads us on.

Temple University School of Medicine
3400 North Broad Street
Philadelphia, PA 19140

9. Cyril Burt, "C. G. Jung," in Cavendish, *Man, Myth & Magic,* p. 1552.

10. Ralph Waldo Emerson, *The Conduct of Life: Beauty,* cited in Marc Edmund Jones, *ASTROLOGY: How and Why it Works* (Baltimore, Md.: Penguin Books, 1971), p. 120.

Elisha Kent Kane's Unpublished Treatise on Dropsy

THOMAS A. HORROCKS

When Elisha Kent Kane (1820–1857) died of a cerebral hemorrhage at the age of 37, Americans mourned the passage of a national hero. As his body lay in state at Independence Hall in Philadelphia, thousands of citizens paid their final respects to a man of daring who, despite a bad heart, descended into the crater of a volcano, engaged in hand-to-hand combat in the Mexican War, and courageously risked death in two Arctic expeditions in search of the British explorer Sir John Franklin, who had been missing since 1845.[1]

Kane did not plan to pursue a life of adventure when he entered the Medical Department of the University of Pennsylvania. His thoughts at that time were directed instead to a career in medicine. Graduating at the top of his class, Kane received his medical degree from the University in 1842. His dissertation was on the topic of kiesteine (or kyestein, which is a film sometimes seen on stale urine), and his work on this subject attracted widespread attention in the United States and Europe.[2]

In 1831, Jacques-Louis Nauche (1776–1843) had announced his discovery of the presence of kiesteine in the urine as a new test for pregnancy. Kane's investigation of kiesteine, carried out at the Philadelphia Hospital, was based on a larger number of cases than Nauche's study, and demonstrated that while kiesteine was not an

1. For information on Kane's life, see William Elder, *Biography of Elisha Kent Kane* (Philadelphia, Pa.: Childs and Peterson, 1858); Samuel M. Smucker, *A Life of Dr. Elisha Kent Kane and Other Distinguished American Explorers: Containing Narratives of Their Researches and Adventures in Remote and Interesting Portions of the Globe* (Philadelphia, Pa.: G. G. Evans, 1858); W. M. Kerr, "Elisha Kent Kane (1820–1857)," *Annals of Medical History,* 1924, 6:71–125; and George W. Corner, *Doctor Kane of the Arctic Seas* (Philadelphia, Pa.: Temple University Press, 1972). The best accounts of Kane's two Arctic expeditions in search of Sir John Franklin are his own *The U.S. Grinnell Expedition in Search of Sir John Franklin: A Personal Narrative* (New York: Harper and Brothers, 1853) and *Arctic Explorations: The Second Grinnell Expedition in Search of Sir John Franklin 1853, 1854, 1856,* 2 Vols., (Philadelphia, Pa.: Childs and Peterson, 1856).

2. Elisha Kent Kane, *Experiments on Kiesteine; with Remarks on its Application to the Diagnosis of Pregnancy* (Philadelphia, Pa.: [Lea & Blanchard], 1842). This was a separately published monograph of Kane's dissertation, which was originally published in the *American Journal of the Medical Sciences,* 1842, 4:13–37.

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 173-176
© 1991 by The College of Physicians of Philadelphia.

unerring early sign of pregnancy, it was among the best available indicators. Kane's position was the accepted one for over 20 years.[3]

In accordance with his father's wishes, Kane joined the United States Navy soon after graduating from medical school. His essay on dropsy was submitted to the U.S. Navy's Board of Medical Examiners, probably as part of his examination for the post of surgeon.[4] Kane's attention was drawn by Dr. William Wood Gerhard (1809–1872), his supervisor at the Philadelphia Hospital, to some special forms of dropsy "interesting from their pathological anomalies."[5] Kane's treatise on dropsy appears to be his only attempt at medical writing other than his dissertation. Acquired by the Historical Collections of the Library of the College of Physicians of Philadelphia in 1986, Kane's essay on dropsy was never published nor has it been mentioned by his biographers.

To the Board of Medical
Examiners etc. etc.

Naval Asylum[6] Oct. 22[d]. [1842]

Dropsy is an exudation of a sero-albuminous fluid, in a greater or lesser state of dilution, either into the great cavities of the body or the investing cellular tissue.

I am aware that the term "exudation" must admit of much latitude when applied to effusion from free serous surfaces; but the causes of dropsy are so numerous and its pathology so varied and obscure, that it is impossible to adhere to a general definition without involving more or less inaccuracy. As, then, the discussions of *dropsy,* in a generic sense, would involve a mere recapitulation of text book authorities, I shall with the

---

3. The history of kiesteine is summarized in Mark Marshall, "The Kyesteine Pellicle: An Early Biological Test for Pregnancy," *Bulletin of the History of Medicine,* 1948, 22:178–195.

4. Smucker, *Life of Dr. Elisha Kent Kane,* p. 24; Elder, *Biography of Elisha Kent Kane,* p. 46; Corner, *Doctor Kane,* pp. 32–33.

5. William Wood Gerhard was born in Philadelphia and received his medical degree from the University of Pennsylvania in 1830. An expert in diseases of the chest and lungs, Gerhard is best known for distinguishing the difference between typhus and typhoid fevers. Howard A. Kelly and Walter L. Burrage, comps., *Dictionary of American Medical Biography* (Boston, Mass.: Milford House, 1928), p. 460.

6. Between the time he joined the Navy and his examination for the post of surgeon, Kane was probably stationed at the Naval Asylum in Philadelphia, which was erected between 1827 and 1833 at Gray's Ferry Road and Twenty-Fourth Street. Designed by William Strickland, the Naval Asylum was founded to provide hospital care and shelter to disabled and aged naval officers, seaman, and marines. Edward Shippen, "Some Account of the Origin of the Naval Asylum at Philadelphia," *The Pennsylvania Magazine of History and Biography,* 1883, 7:117–142; Charles H. Stockton, *Origin, History, Laws, and Regulations of the United States Naval Asylum, Philadelphia, Pennsylvania* (Washington, D.C.: G. P. O., 1886).

permission of the board, confine myself to some special forms of the disease, interesting from their pathological anomalies.

In ordinary cases of anasarcous effusion or oedema of the extremities, but little distinction is drawn by systematic writers between certain cases whose manifestations are looked upon as identical, while their causes and pathology are essentially varied. As an inquiry into the distinctive features of *apparently* similar conditions is *practical* in all its aspects, to this I shall confine my remarks.

The cases to which I refer are these. 1st. The patient is beyond middle age, his appearance is *not* cachectic, his history betrays no lately experienced acute disease — no organic affection of heart or kidneys is evidenced upon examination, there is no *general* impediment to the return of venous blood and, finally, there is no local varicosis. And yet a diffused swelling, unattended by discoloration, and eminently progressive in its character, gradually, extends over the whole extremities. 2nd. The patient is an active man or working female, under the *middle* age, of *rustic* temperament, but *without* indications of general plethora. 3rd. A child, who has never suffered from scarlatina or other active affections — whose diathesis is free from taint, and whose general condition is entirely free from abnormal indications. In all of these, after careful scrutiny, we have no guide to the cause. The swelling is entirely independent, either of relaxation of tissues, local or general congestion — or any of the causes cited above.

My attention was called to this anomalous form of dropsy by Dr. Gerhard while acting under his direction as Resident Physician to the Philadelphia Hospital, at a period anterior to my entrance into the Navy. The cases were then confounded with the ordinary anasarcas dependent upon a local cause, an error entertained by all my colleagues and readily sustained by the generally obscure character of dropsical revellations [sic]. By the suggestion of Dr. Dunglison, I commenced a series of diagnostic tests.[7] The urine betrayed no increase of albuminous deposits or phosphatic salts, the blood was unaltered, and after running through the catalogue, the effects of remedies were carefully investigated, but with the same unsatisfactory results. Depletion by venesection, saline evacuants; the sedative evacuants; — including colchicum and digitalis — rather increased than diminished the effusion. Position, elevating the limb, *sensibly diminished* it. Exercise or horizontal posture induced *no visible change*. Under these circumstances the question arose, "Can there be an idiopathic local dropsy, a state rather of secretion than exudation, but a secretion (or excreto-

7. Robley Dunglison (1798–1869) was born in Keswick, England, and received his medical degree from the University of Erlangen in 1824. He came to the United States at the invitation of Thomas Jefferson to teach anatomy at the University of Virginia. A prolific author, Dunglison wrote well-received textbooks on theory and practice of medicine and on therapeutics. He was a member of the faculty of Jefferson Medical College for many years. "Robley Dunglison," in Kelly and Burrage, comps., *Dictionary of American Medical Biography,* p. 357.

secretion) in which the fluid is so deprived of fibrinous or plastic action as to prevent any tendencies to organization or transformation of tissue?"

This question I am not prepared to discuss, and it is, at best, but a matter of definition which separates it from ordinary local exudations. The subject however becomes interesting when we remember the very meagre notices which it has received from systematic writers.

Such a condition as that which we have described may, if we admit a strictly local action, exist as an *exudation* dependent upon some unknown neuro-vascular change. Or when we remember the influence of the veins in absorption of liquids, it is not hard to suppose a capillary-venous derangement of *function* which will explain all the phenomena of our cases.

For practical purposes, viz. the treatment, it becomes of importance to determine the question of local origin — in order to avoid the depletants, the drastics, and the host of horrors which attend an empirically treated dropsy. I may then, with propriety, state in conclusion that after exhausting the remedial agents, based upon previously acknowledged causes, opium, in doses which enabled it to exercise its *peculiar* influence upon the capillary system, was, in every case, successful and that its benefits were coincident with its *tingling* sensation.

From the preceeding [sic], as well as material, which the length of my sheet forbids me to introduce, I would subject, with diffidence, the subjoined summary, excluding such of its imperfections as are attendant upon the circumstances of its composition.

1. That the generally received proposition, "that there is no dropsy with[out] a general or mechanical vice," admits of decided reservation.

2. That there is a form of anasarca which is unaccompanied by general symptoms and unrelieved by general remedies — unless by their local determination.

3. That such a form is, for practical purposes, "*a local dropsy.*"

4. That the remedial agents which aggravate are those which diminish vascular tone and plasticity.

5. That those which, in nearly every case, relieve are opium in doses to affect the capillaries, or local excitants.

Respectfully,
E. K. Kane
U. S. N.

College of Physicians of Philadelphia
19 South 22nd Street
Philadelphia, PA 19103

Rockefeller Foundation Fellowships in the Humanities

NANCY J. TOMES
JULIA EPSTEIN
PHILIP PAULY

In 1985 the Francis C. Wood Institute of the College of Physicians of Philadelphia became one of 12 locations in the United States for the Rockefeller Foundation Humanities Fellowship Residency Program. The Rockefeller program is designed to aid scholars whose work advances understanding of the modern world through clarification of the past or direct assessment of the present. Rockefeller support provided scholarships for a year of research and writing at the College to six scholars whom the Institute had chosen on the basis of the quality of their work, and their utilization of the resources of the College. The first three of these Fellows, Harry M. Marks, Alan M. Kraut, and Barbara H. Traister reported on their research in the March 1989 number of *Transactions & Studies of the College of Physicians of Philadelphia*. In this issue the final three Fellows, Nancy J. Tomes, Julia Epstein, and Philip Pauly present their reports.

Editor

REPORT OF THE 1988–1989 ROCKEFELLER FOUNDATION HUMANITIES FELLOWSHIP RESIDENCY PROGRAM AT THE FRANCIS C. WOOD INSTITUTE–Nancy J. Tomes

During my tenure as a Rockefeller Fellow at the Wood Institute, I began writing my second book, which is now tentatively titled *The Private Side of Public Health: Popular Health Education and Responses to the Germ Theory, 1870–1920.* As I initially conceived it, the project seemed deceptively simple: I wanted to chart the ways that new medical conceptions of contagious disease, specifically the germ theory, reshaped popular attitudes and behavior. Surprisingly little has been written on this topic. While numerous studies have traced the impact of bacteriology on late nineteenth-century medical institutions and professional aspirations, relatively few have explored the intellectual and behavioral assimilation of the germ

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 177-190
© 1991 by The College of Physicians of Philadelphia.

theory beyond the ranks of elite physicians or public health reformers. (Even the impact of the germ theory on *medical* thinking is poorly understood.) By examining the content, method, and response to public health education programs in the early twentieth century, I planned to investigate how the new scientific understanding of contagious disease re-figured popular conceptions of illness and patterns of health behavior.

I began by looking at the tuberculosis movement, which represents the earliest and most ambitious campaign deliberately to change public conceptions of a disease. For my purposes, tuberculosis is especially useful, since prior to Koch's discovery of the tubercle bacillus in 1882, most physicians and laymen considered it a hereditary/constitutional, as opposed to contagious, disease. New scientific discoveries about the mode of its transmission led to a major public health effort to reduce tubercular infection through mass diagnosis and hygiene education, (along with sanatorium construction and other such measures). The educational aspects of the tuberculosis movement thus formed the first focus of my research and writing.

The College of Physicians proved an excellent place for studying the tuberculosis movement. The papers of Lawrence Flick, one of the founding fathers of the tuberculosis campaign, are the single best source I have used. In his correspondence, I found many useful perspectives on changing conceptions of contagion, both among physicians and laypersons. Flick also compiled an extensive pamphlet collection, including many pieces of fascinating "ephemera." For example, I came across a catalogue for a company that designed tuberculosis exhibits for schools and clubs, which gave me a sense of the advertising strategies used in popular education. I also spent a great deal of my time exploring the College's extensive journal collection: *The Journal of the Outdoor Life,* published by the National Tuberculosis Association, was an excellent source on the methods and content of health education.

I did other research on the tuberculosis movement at the Temple University Urban Archives, where I examined the records of the Central Labor Union, which had a tuberculosis committee early in the second decade of the twentieth century; the archives of the American Lung Association (successor to the National Tuberculosis Association) in New York City, where I concentrated on the "confidential reports" of early city and state tuberculosis societies; and

the Chicago Historical Society, where I examined the records of the Chicago Tuberculosis Institute.

Out of this research on the tuberculosis movement came a paper entitled "Popular Health Education from Tuberculosis to AIDS," which I presented as the 1989 Culpeper Lecture at the University of California at San Francisco in February, and also at the University of Illinois at Champaign-Urbana, and the Johns Hopkins Institute of the History of Medicine in March 1989. In this paper, I examine the development of mass educational techniques in the tuberculosis movement, particularly their origins in turn-of-the-century advertising. These publicity methods represent the first attempts at mass health propaganda, and as such, became the model for all subsequent health education campaigns, including those against venereal disease, cancer, and heart disease. The health crusades spearheaded by the tuberculosis movement not only played an important role in teaching concepts of contagion and preventive hygiene, especially to children; they also promoted the idea of health as a common civic good, and used it to build a sense of community across class and civic lines. I looked in particular at the tuberculosis work done by labor unions and black communities as aspects of this new health consensus.

In the last part of the paper, I speculate on the historical legacy of the tuberculosis movement and other early health crusades to the modern-day AIDS crisis. Much of the first AIDS education can be seen as an "undoing" of the simple hygienic rules promulgated by the tuberculosis movement and its successors. In other words, people processed information about this new disease in terms of older hygienic beliefs that were completely irrelevant to its mode of transmission. Moreover, I contend that the roots of health education in advertising, and its emphasis on health as a common social good, have inadvertently hampered efforts to reach the groups now most at risk from the AIDS virus, namely intravenous drug users and their partners.

While at the Wood Institute, I also did some work on a related paper about the Rockefeller Foundation's Commission for the Prevention of Tuberculosis in France (CPTF), which I had written the spring before I arrived in Philadelphia. I use the CPTF to look at the "exportation" of American health ideology and methods overseas during and immediately after World War I, when a small band of prominent tuberculosis workers went to France to help stave off a threatened epidemic of the disease. In describing how American

public health methods were "translated" for the French, I was able to show clearly the underlying assumptions about advertising health and building a community health consensus that informed their work. I presented this paper at the Wood Institute seminar series in November 1989, and got some valuable suggestions for rewriting it.

During the second part of my leave, my work took a new direction. The more I worked on the tuberculosis movement, the more I began to question the scope of the study as I had originally conceived it. Prior to my year at the College, I envisioned the tuberculosis movement as the beginning and middle of my study; the inclusive dates of my Rockefeller proposal were 1900 to 1930. Once the tuberculosis paper was done, I began to plot out the first chapter covering the nineteenth-century background. In order to understand the tuberculosis movement, I reasoned, I had to have some conception of what came before. To get some sense of the public health movement generally, I began to work through the Philadelphia Board of Health records at the Philadelphia City Archives. I also went into the College of Physicians's stacks and began reading through its extensive collection of hygiene manuals from the late 1800s. I found additional domestic hygiene manuals at the Drexel University Library, and visited the University of Pennsylvania Library to read nineteenth-century women's magazines. Dissatisfied with simply reading advice literature, I tried to get some sense of the context in which it was read by examining family papers at the Historical Society of Pennsylvania. (The Kelley family papers turned out to be exceptionally good in this respect.)

Slowly I began to realize that my study needed to move backwards into the nineteenth century, rather than forward into the twentieth century; that the popular assimilation of the germ theory could only be understood in terms of an earlier campaign at health education, which grew out of the rise of "sanitary science" in the mid-1800s. In particular, I became intrigued with the sanitarians' crusade to reform the domestic environment as a means of preventing contagious disease.

This set of interests led to the second paper I wrote while a Rockefeller Fellow, entitled "The Private Side of Public Health." I first gave this talk at the Wood Institute in February 1989, presented it again at the University of Illinois in March 1989, and gave yet another version in the plenary session at the annual meeting of the American Association for the History of Medicine in April 1989.

The paper uses the notion of "house diseases" and domestic hygiene to illustrate the continuity between the sanitarian and bacteriological conceptions of public health. Previous interpretations have tended to emphasize the antagonism between the two, because many prominent sanitarians feared that the germ theory would undercut their hard-fought campaigns to clean up the urban environment, as well as undermine the powerful moral linkages between dirt and disease. But I argue that this well-known resistance to the germ theory has obscured the more fundamental continuities in nineteenth-century conceptions of contagious disease. My reading of domestic advice literature suggests that at the level of popular education, sanitary science created a framework, both in terms of ideas and methods of popular education, that allowed for the relatively rapid dissemination among middle-class Americans of the germ theory.

Using domestic advice manuals, women's magazines, and family papers, I explore how the early public health movement gave rise to an educational campaign aimed at preventing contagious diseases in the home. Architecture, plumbing, and housekeeping all became points of concern among health reformers in the decades after 1860. Their widely-disseminated warnings about the dangers of bodily "pollutants" and disease "poisons" pathologized the home in such a way that subsequent information about the germ origins of many disease was quickly and easily assimilated into popular thought and behavior. Undoubtedly the most important reason for the relatively rapid popular acceptance of the germ theory was the fact that it seemed to justify exactly the same hygienic precautions people were already taking, namely ventilation, disinfection, general cleanliness, and the like.

Now that I see my book centered in the decades from 1870 to 1920, I envision "The Private Side of Public Health" as the first chapter (possibly two); "Popular Health Education" as a chapter in the middle; and the CPTF piece as the last chapter of the book. Thus while in residence at the Wood Institute, I completed drafts of approximately half the book manuscript. I still have crucial decisions to make about the scope of the remaining chapters; over the last year, I have discovered many interesting areas that might be pursued, such as burial reform and the cremation movement, the promotion of "sanitary packaging," and the controversy over shared communion cups. While I am not sure exactly what the remaining chapters will look like, I believe I have made substantial

progress on the overall project, both in terms of research and conceptualization.

Like all the other Rockefeller Fellows, I have been impressed by the exceptional opportunities for intellectual fellowship that the Wood Institute offers. I think Philadelphia is one of the best places in the country for doing medical history. During my fellowship, I have met many new faces and renewed contacts with other old friends. Being part of a vigorous, diverse, supportive community of scholars interested in medicine has been of incalculable benefit to me. I particularly would like to thank my office mate at the Wood Institute, Julia Epstein, for her willingness to educate me about the new literary/critical approaches to medical history. She has explained many mysteries of terminology and theory to me. I also would like to thank Diana E. Long, the director of the Wood Institute at the time, for her unfailing helpfulness and graciousness; her influence has helped make the College a wonderful place to work. Last but not least, I would like to thank the members of the Wood Institute History of Medicine seminar series for their helpful comments. Barbara Bates, Janet Golden, and Charles E. Rosenberg have been especially insightful in their commentaries on my work.

Department of History
SUNY at Stony Brook
Stony Brook, NY 11794

REPORT OF THE 1988–1989 ROCKEFELLER FOUNDATION HUMANITIES FELLOWSHIP RESIDENCY PROGRAM AT THE FRANCIS C. WOOD INSTITUTE–Julia Epstein

The Development of the Medical Case History

In both patients' stories of their medical ordeals and physicians' clinical case histories, medical narratives force their readers to consider the relation of language to bodily experience. Recently, in the journal *Literature and Medicine* and in work by Arthur Kleinman, Richard Seltzer, Howard Brody, Oliver Sacks, Kathryn M. Hunter, and others, some analyses of the "poetics" of the case history as a literary form have appeared; attention is beginning to be turned to

the signifying practices of what neurologist Sacks calls the "clinical tale." But medical narratives cannot easily or responsibly be read as fictions without neglecting their foundation in the experience of the body and in the social as well as clinical functions of medical diagnosis. The very discursive closure and apparent linearity of medical narrative creates a reconstituted and unified story, and displaces authority from the case historian to the text. How does the case narrative derive from and respond to the culture that produces it? How do medical case historians arrive at an epistemology of the body, or, more simply put, how do they interpret and diagnose?

The case history is the most basic narrative unit of clinical practice; diagnostic argument depends upon its discourse and its protocols. The first part of this research traces the history and evolution of the patient history from its western origins in the Hippocratic *Epidemics* to the stereotyped, codified form of writing now institutionalized as the foundation for medical record-keeping. Implied in this evolution is a concurrent development of the concept of authority in medicine: the physician becomes an arbiter of what counts as an authoritative reading of physiological processes. I address the following questions: what are the narrative conventions governing the case history, and when and for what reasons did they develop? What are the boundaries of authority in the "writing up" of a patient-physician encounter? Who is the implied reader of a patient history? What are the motives of the narrator? And finally, what kind of knowledge is recorded and transmitted by clinical narratives?

The assumption underlying these questions is that a patient history is a social document as well as a record-keeping device embedded in the formation of medicolegal institutions. As such, it can be examined as a problem in the codification of knowledge. The history of medical record-keeping has not yet been fully written. This history reveals that case recording has been intimately connected with concepts of disease as a specific entity and with differential diagnosis as a specialized procedure. The patient history as we know it — the kind that begins "Jane Doe is a 37 year old, hispanic, moderately obese woman" — contains in its language, its form, and the uses to which it is put reflections of prevailing notions of explanation in medicine and of models for taxonomies of disease and illness.

Professional medical chronicles share certain conventions with literary representations of the body's experience in that both serve as kinds of explanatory discourses. When the case history became an institutional genre in the nineteenth century, illness was no longer read entirely as a providential sign or instrument — the narrative of illness was no longer exclusively a spiritual narrative in which the body operates merely as a casing for the soul — but the spectacle of illness, though becoming increasingly understood as a *material* spectacle, was also not yet a monopolized zone inhabited solely by the prognosticating medical expert. That at this point narration became enlisted at all in a scientific discipline as a major problem-solving technique itself raises questions. The case history as a genre of writing conceives human experience in a particular way and assumes that a life of clearly understood health or disease embodies a connected narrative, a coherent sequential story. In contrast, unexplained disorders or diseases of unknown etiology signify, in part, an inability to give an adequate account of the self, and produce narratives of disjunction.

Case Studies

Building on the foundations of medical writing in the case narrative, I studied particular diagnoses that span medical and social categories in order to see how medical discourse produces narratives different from those produced by other kinds of discourses — legal, moral, etc. The first diagnosis I examined is hermaphroditism, because its cases raise the problem of classification and "truth," and therefore of the potential for duplicity or fraud in the clinical history. Indeed, hermaphrodites have always challenged the very project of scientific taxonomy. By studying the history of treatments of hermaphrodites, from their execution as monsters in antiquity and the Middle Ages to their recent medicalized invisibility with the advent of new surgical techniques and hormonal therapies, it is possible to see how professional discourses shape the stories they tell and reflect and reproduce the culture they inhabit.

From this study will derive further investigations of diagnoses that spill over from medicine into other cultural arenas: my next project will entail an examination of the eighteenth-century debates about the agency of maternal imagination during pregnancy, for example.

Resources

The Historical Collections of the College of Physicians of Philadelphia provided ample material for this research. Whatever I could not obtain was available to me during a February trip to the National Library of Medicine in Bethesda, Maryland. For the history of medical records, I had access to original editions of manuals of physic, *vade mecums,* collections of case reports, and treatises on hospitals and case reporting by Thomas Sydenham, Giorgio Baglivi, Théophile Bonet, Peter Shaw, John Bellers, John Coakley Lettsom, John Barker, Peter Middleton, James Sims, David McBride, Sir John Floyer, Francis Clifton, Edward Foster, Francis Home, John Ferriar, David Hosack, Philippe Pinel, William Augustus Guy, H. M. Bullitt, Samuel Crompton, John Southey Warter, W. H. Allchin, and many others. Through the College's historical periodicals collections I studied such issues as the controversy over the case method of teaching clinical medicine. The College's extensive archive of manuscript materials offers a rich source of case notebooks, and I found particularly useful those of American physician Hugh Lenox Hodge. For secondary sources not in medical history, such as work on narrative theory in literary criticism, anthropology, and historiography, I relied on the Van Pelt Library of the University of Pennsylvania and the Canaday Library at Bryn Mawr College. The most arcane of the materials I required — sixteenth-, seventeenth-, and eighteenth-century treatises on hermaphroditism — turned out to be plentiful in the Historical Collections, which has surprisingly extensive holdings of rare materials on this subject.

Outcome

I completed three pieces of a proposed book on the production of medical narrative during my fellowship year. An essay entitled "Historiography, Diagnosis, and Poetics" forms a theoretical introduction to this work and will be published in *Literature and Medicine* in 1992. The first chapter was delivered as a Francis C. Wood Institute for the History of Medicine seminar on 6 April 1989, and will be considered by a medical history journal. Another chapter, called "Either/Or: Hermaphroditism and the Ideology of Gender," was presented at the 1988 Society for Science and Literature meetings and has been published in *Genders,* vol. 7, Spring 1990, an interdisciplinary journal. This article is illustrated with photographs from the Historical Collections.

Thomas Horrocks, director of the Library for historical services; Jack Eckert, manuscript archivist; Jean Carr of the Historical Collections; Tracy Woodward, circulation librarian; and Carla C. Jacobs, administrative assistant at the Wood Institute all made working at the College a pleasure. I want to thank Diana E. Long, director of the Wood Institute in 1988–1989; Nancy J. Tomes, associate professor of history at the State University of New York in Stony Brook and my colleague as a Rockefeller Fellow; Charles E. Rosenberg, professor of history and sociology of science at the University of Pennsylvania; and the members of the Francis C. Wood Institute for the History of Medicine seminar for sharing their expertise in medical history with good will and generosity.

Department of English
Haverford College
Haverford, PA 19041

REPORT OF THE 1989–1990 ROCKEFELLER FOUNDATION HUMANITIES FELLOWSHIP RESIDENCY PROGRAM AT THE FRANCIS C. WOOD INSTITUTE–Philip Pauly

Prohibition and Related Experiments

Alcohol consumption was the most significant and politically volatile health-related controversy from the 1880s to the 1930s, the period when the modern structure of biomedical research and the authority of science-based medicine were established. Yet little is known about the extent, nature, and limits of scientists' roles in the controversies that culminated in the decade and a half of Prohibition. I am examining American scientists' work on the physiology, pathology, and psychology of alcohol during this period, as well as their involvement with the prohibition "experiment."

Such a study has intrinsic historical value, since the subject has been neglected in the voluminous literature on temperance movements. Beyond that, it is significant in two ways: it illuminates how scientific medical leaders negotiated the boundaries of their authority in relation to other social groups, and it provides a comparative basis for understanding the roles of experimental research-

ers in other more current medical-social issues such as sex, smoking, or electromagnetic radiation.

American medical scientists established themselves as professionals in large part through the claim that experimental research gave them unique access to knowledge about the natural world. The action of alcohol, a simple chemical substance, seemed a subject clearly within their domain. Following the German pioneers of experimental physiology, American scientists sought rigorous answers both at the level of cells and tissues and at the level of metabolizing, working, and thinking human organisms; they believed that their results would provide a solid foundation for both medical care and public policy. Yet because alcohol's effects were deceptively hard to define, and because there was considerable variability both within and among individuals, many questions remained open.

Controversies were heightened by the immediate relevance of knowledge claims to political issues. Alcohol was not merely a question of science and health. It acted as a fundamental marker of social divisions. It provided the focus for the first mass involvement of women in reform. Temperance leaders pioneered the methods of interest group politics. Partisans with varying degrees of expertise, insight, and fairness attacked researchers' results and methods, as well as their sources of funding and motivations. The constant exposure of alcohol researchers to political criticism meant that the subject was limited largely to the professionally secure — to major figures at leading institutions. At the same time, it meant that those scientists involved were themselves "interested" figures: most had strong opinions about prohibition and individual freedom. They expressed clear biases regarding the class, ethnic, religious, and gender identities of both drinkers and reformers. Moreover, they were often those scientists most directly concerned to establish expert authority in areas of public controversy.

Fellowship Activities

I came to this subject in the course of research on the origins of American biology education. At the turn of the century there was a major controversy between the Woman's Christian Temperance Union (WCTU) and the leaders of American medical science over what and how much should be taught in schools about the possible dangers of alcohol. Through this controversy it is possible to ana-

lyze the tactics by which scientific leaders undermined the political standing of female reformers, and, more significantly, to understand how experimentalists dealt with the difficult challenge of persuading the public that their inability to detect an effect (in this case, deleterious consequences of "moderate" drinking) meant that the effect should be treated as nonexistent. During my fellowship year I prepared and revised "The Struggle for Ignorance about Alcohol: American Physiologists, Wilbur Olin Atwater, and the Woman's Christian Temperance Union." This paper was presented to the Wood Institute History of Medicine seminar series in December 1989, and it has been published in the fall 1990 issue of the *Bulletin of the History of Medicine.*

My major effort as a Fellow was to explore the broader framework of scientific knowledge and inquiry within which the Atwater controversy rested. Alcohol research was a major element in medical scientific effort around the turn of the century, and yet, as contemporaries often noted, work in this area was notable for bias and lack of rigor. The College of Physicians was an ideal location for sorting through the extensive publications on this subject. I surveyed periodicals such as the *Journal of Inebriety* and the *Scientific Temperance Journal,* and searched through medical, physiological, and psychological journals, monographs, and textbooks. At the same time, I continued to educate myself about current views on the pathology and psychology of alcohol.

In addition to surveying this literature, I examined relevant manuscript collections. These included: the Raymond Pearl and C. B. Davenport papers at the American Philosophical Society; records of the Carnegie Institution of Washington Nutrition Laboratory; the Raymond Fosdick papers at Princeton University; family and foundation records at the Rockefeller Archive Center; records of the Life Extension Institute and the Center for Alcohol Studies at Yale; papers of H. P. Bowditch and F. G. Benedict at Harvard; the G. Stanley Hall papers at Clark University; the Haven Emerson papers at the New York Academy of Medicine; and other collections. I have begun to organize this material and to draft chapters.

I am in the process of preparing a paper entitled, "Why Were the Reproductive Effects of Alcohol Uninteresting for Much of this Century?" for presentation to the Organization of American Historians in April 1991. This paper examines the burst of animal research between 1910 and 1930 dealing with the reproductive consequences, both embryological and genetic, of chronic alcohol

use. In the second decade of the twentieth century, C. R. Stockard and G. Papanicolaou of Cornell Medical College claimed that "alcoholic" guinea pigs (both male and female) produced offspring with high rates of mortality and deformity, and that these effects extended to the second and third generations. The geneticist Raymond Pearl, by contrast, argued that his experiments with fowl showed that alcohol might in fact play a eugenically "positive" role in eliminating weak individuals from human populations early in their lives. This highly charged dispute gradually wound down in the years following ratification of Prohibition, as it came to appear increasingly academic. A consensus developed that the results of both Stockard and Pearl were artifacts. Scientific leaders (especially those associated with the Rockefeller Foundation) actively embraced the view that the reproductive pathology of alcohol was scientifically uninteresting, and little was done in this area until the 1970s.

I have also mapped out and collected material for a chapter dealing with changing definitions of intoxication. In the period before and during World War I, the psychomotor effects of small doses of alcohol formed a significant frontier of psychological research. It formed a crucial justification for one of the most controversial aspects of Prohibition: defining all beverages with more than 0.5 percent alcohol as intoxicating. During the 1920s, scientists opposed to complete Prohibition — most notably Yandell Henderson of Yale — shifted attention from the quantification of behavioral deficits with small amounts of alcohol to the determination of the maximum ingestion possible without serious impairment. The conceptual framework supporting this perspective came from industrial toxicology; alcohol was viewed as a substance analogous to lead or carbon monoxide, an unavoidable concomitant of modern life presumed innocuous at levels that displayed no specifiable problem. This framework has dominated thinking about alcohol dosages up to the present.

The history I have uncovered thus far presents some puzzling aspects. The recurring themes after 1900 are ignorance, uncertainty, and lack of interest. The history of ignorance is an important yet neglected subject in science and medicine, yet it is not conducive to monographic treatment; almost by definition it lacks the narrative elements of depth, continuity, and development. At present I am faced with three possibilities: to prepare separate papers on different subjects as seem appropriate; to extend my analysis to the 1970s in order to consider the rise and decline of the "alcoholism" concept,

the reemergence of interest in heavy drinking, and the discovery of fetal alcohol syndrome; or to put my study in a comparative context of research on other addictive and controversial substances, most notably opiates. Each of these alternatives has its advantages and problems. At present I am consolidating the results gathered during the fellowship year before deciding which path to take.

In addition to work on the history of alcohol research, I completed previously committed projects on related topics. I prepared for publication the paper on biology education that initially brought the alcohol question before me. "The Metropolitan Origins of High School Biology" argues that this subject was designed in the early years of this century by Progressive educators who viewed it as a science that would make the organisms they found in their schools (meritocratic immigrant male adolescents) aware of their place in nature and accelerate their maturation into humane secular modern adults. This claim leads to reinterpretation of the creation-evolution controversy. I also wrote a paper entitled "Modernist Practice in American Biology" for a conference on modernity in the biological and social sciences held at the Rockefeller Foundation's Bellagio Conference Center in May 1990. This piece compares attitudes and practices of American biologists with those of early modern artists, as part of the conference's effort to determine the common themes in the complex cultural transformations of the turn of the century.

I was very pleased with the opportunities available at the Wood Institute. The College library's extensive collections in late nineteenth- and early twentieth-century medical literature made it an ideal place for the searches that occupied a considerable part of my time. I supplemented its collections with work at the University of Pennsylvania, Rutgers University, and New York area libraries. I was grateful for the friendly hospitality and freedom provided by the Institute's environment; I was particularly delighted to learn more about the social history of American medicine from Nancy J. Tomes and Janet Tighe, and to discuss the specifics of the alcohol problem with Sarah Tracy. The University of Pennsylvania colloquium in history of science gave me the opportunity to renew and extend contacts with a number of historians of science and medicine in the Philadelphia area.

Department of History
Rutgers University
New Brunswick, NJ 08903

Books Recently Received for Review by *Transactions & Studies of the College of Physicians of Philadelphia*

Kristine Beyerman Alster, *The Holistic Health Movement* (Tuscaloosa, Ala.: University of Alabama Press, 1989).

Mark D. Altschule, *Essays on the Rise and Decline of Bedside Medicine* (Philadelphia, Pa.: Lea & Febiger, 1989).

Joan Jacobs Brumberg, *Fasting Girls: The Emergence of Anorexia Nervosa as a Modern Disease* (Cambridge, Mass.: Harvard University Press, 1988).

Scott Buchanan, *The Doctrine of Signatures: A Defense of Theory in Medicine* (Champaign, Ill.: University of Illinois Press, 1991).

Ruth Ellen Bulger and Stanley Joel Reiser, eds., *Integrity in Health Care Institutions: Humane Environments for Teaching, Inquiry, and Healing* (Iowa City, Iowa: University of Iowa Press, 1990).

David L. Cowen and William H. Helfand, eds., *Pharmacy: An Illustrated History* (New York: Harry N. Abrams, 1990).

Audrey B. Davis and Mark S. Dreyfuss, *The Finest Instruments Ever Made: A Bibliography of Medical, Dental, Optical, and Pharmaceutical Company Trade Literature; 1700–1939* (Arlington, Mass.: Medical History Publishing Associates I, 1986).

Jack D. Ellis, *The Physician-Legislators of France: Medicine and Politics in the Early Third Republic, 1870–1914* (New York: Cambridge University Press, 1990).

Robert Gallo, *Virus Hunting: AIDS, Cancer, & the Human Retrovirus: A Story of Scientific Discovery* (New York: Basic Books, 1991).

Sander L. Gilman, *Disease and Representation: Images of Illness from Madness to AIDS* (Ithaca, N.Y.: Cornell University Press, 1988).

Mirko D. Grmek, *Diseases in the Ancient Greek World,* trans. by Mireille Muellner and Leonard Muellner, (Baltimore, Md.: The Johns Hopkins University Press, 1991).

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 191-193
© 1991 by The College of Physicians of Philadelphia.

Hugh C. Hendrie and Camille Lloyd, eds., *Educating Competent and Humane Physicians* (Indianapolis, Ind.: Indiana University Press, 1990).

S. Robert Hilfer, *The Emergence of Experimental Embryology in the United States* (Bethesda, Md.: National Library of Medicine, 1990).

Darlene Clark Hines, *Black Women in White: Racial Conflict and Cooperation in the Nursing Profession, 1890–1950* (Indianapolis, Ind.: Indiana University Press, 1989).

Anne Hudson Jones, *Images of Nurses: Perspectives from History, Art, and Literature* (Philadelphia, Pa.: University of Pennsylvania Press, 1988).

James Kinsella, *Covering the Plague: AIDS and the American Media* (New Brunswick, N.J.: Rutgers University Press, 1989).

David Lamb, *Organ Transplants and Ethics* (New York: Routledge, Chapman & Hall, 1991).

Robert Lee and Derek Morgan, eds., *Birthrights: Law and Ethics at the Beginnings of Life* (New York: Routledge, Chapman & Hall, 1991).

Ornella Moscucci, *The Science of Woman: Gynaecology and Gender in England, 1800–1929* (New York: Cambridge University Press, 1990).

National Library of Medicine, *Bibliography of the History of Medicine, Number 25, 1985–1989* (Washington, D.C.: U.S. Dept. of Health and Human Services, 1990).

Edward Norbeck and Margaret Lock, eds., *Health, Illness, and Medical Care in Japan: Cultural and Social Dimensions* (Honolulu, Hawaii: University of Hawaii Press, 1987).

Ophthalmology Oral History Series, *An Interview With Harold Glendon Scheie, M.D.* (San Francisco, Calif.: The Foundation of the American Academy of Ophthalmology, 1989).

Charles Ernest Overton, *Studies of Narcosis,* ed. by Robert L. Lipnick, (Park Ridge, Ill.: Wood Library-Museum of Anesthesiology, 1991).

The Park Ridge Center for the Study of Health, Faith, and Ethics, *Second Opinion: Health, Faith, and Ethics. Volume Twelve: Transplants: Are They Worth It?* (Chicago, Ill.: The Park Ridge Center, 1989).

Paul Robinson, *The Modernization of Sex* (Ithaca, N.Y.: Cornell University Press, 1989).

John P. Swann, *Academic Scientists and the Pharmaceutical Industry: Cooperative Research in Twentieth-Century America* (Baltimore, Md.: The Johns Hopkins University Press, 1988).

Guy Williams, *The Age of Agony* (Chicago, Ill.: Academy Chicago Publishers, 1986).

Guy Williams, *The Age of Miracles* (Chicago, Ill.: Academy Chicago Publishers, 1987).

Reviews

L. R. LIND, trans. *Berengario da Carpi On Fracture of the Skull or Cranium.* Philadelphia, Pa.: American Philosophical Society, 1990. Price $20.00.

Reviewed by VIVIAN NUTTON

L. R. Lind's English translation of Berengario da Carpi's Renaissance Latin text *De Fractura Calvae* should be warmly recommended for a variety of reasons. First, it makes accessible a very rare tract (Lind knows of only eight extant copies, but alas does not give their locations), written by a distinguished surgeon and anatomist, Berengario da Carpi (ca. 1460–1530), on a theme that had been treated by a variety of authors from Hippocrates onwards. *De Fractura Calvae* was originally published in December 1518, and thus offers insight into medical teaching and practice on the eve of the "Hellenic Revolution": a revolution made possible by the printing in 1525 and 1526 of the complete works of Galen and Hippocrates in Greek. As Lind shows, Berengario was a learned man, well acquainted with the medicine of the past and not at all an illiterate surgical butcher. His Latin, though less elegant than that of Vesalius, is both forceful and precise, and reveals a master of exposition as well as of practical surgery. By choosing this text, Lind has once again put the student of Renaissance medicine deeply in his debt.

Berengario is nothing less than thorough in his discussion of head wounds and similar lesions of continuity. He gives detailed descriptions of their causes, signs, and symptoms, before passing on to their treatment by diet, medicine, and surgery. Berengario devotes separate chapters to contusions from musket-balls and to the various surgical instruments recommended, and concludes with a step-by-step account of how to operate surgically on a head wound. His arguments are buttressed by authorities from the past as well as by examples from his own practice.

Lind's English translation reads well, and he renders accurately the complex anatomical and surgical terminology. He is less happy with the more literary Latin of the preface and final salutation (sig. CIIV, here oddly transposed without warning to the front of the volume). For example, "with much give and take" applies not to the student's enquiry after the Duke's health but to the discussion on surgery (p. 1); Berengario in fact says that many great physicians

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 195-204
© 1991 by The College of Physicians of Philadelphia.

in word and pen are to be found only "exiguous and minute" in actual practice (*opere*) (p. 3); not "drowsiness," but a dream (*somnium*), a reference back to the visitation from Hermes Trismegistus, not properly identified by Lind on page two (p. 3). One may regret too the decision to omit the preliminary poems, for they give something of the tone of the whole book, and it is not made clear that Segni's table of bones is not in the original printing, but, according to Durling, constitutes a much later insertion of a leaf from a 1616 publication (p. xxiii).

More serious in its implications is Lind's misunderstanding of another sentence on page three. Far from "liberating books from the faultiness of the ancients," Berengario is concerned to "liberate the sayings of the ancients from the faults that are in them." In other words, Berengario, as his practice shows, is not an opponent of classical authority, but a critical adherent. This explains his involvement in the first Latin translation of Galen's anatomical writings, begun around 1523 (not, as indicated on p. xiii, in 1529, since Pomponazzi, one of Berengario's advisers, died in 1525), and Berengario's concern with such questions as the authorship of the *Pantegni* (p. 9, where he is correct) and a possibly lost portion of Galen's *Method of Healing* (pp. 119 and 143, where he is not correct). How much Greek Berengario himself knew is not clear, but it should be remembered that, for the most part, the writings of both Galen and Hippocrates still existed only in manuscript, and were hence largely inaccessible to all but a very few. Under such circumstances, Berengario's command of the literature of the past is as impressive as his practical abilities. Professor Lind's services to this Renaissance author are equally worthy of our attention and gratitude.

Wellcome Institute for the History of Medicine
183 Euston Road
London NW1 2BW
England

GEORGE TIEMANN & CO. *American Armamentarium Chirurgicum*. 846 pp. San Francisco, Calif.: Norman Publishing, 1989. Price $165.00.

Reviewed by PHILIP M. TEIGEN

The truism that one can know a craftsman by his tools has long

guided medical museum curators and instrument collectors in the search for historical medical instruments and the catalogues of their makers. Historians of medicine and surgery, on the other hand, have tended to be verbally rather than visually or artifactually oriented. Hence they have preferred printed and manuscript sources to visual and three dimensional ones. This reissue of George Tiemann & Co.'s instrument catalogue, *American Armamentarium Chirurgicum,* gives those of us who are unsophisticated in our knowledge of medical technology a rationale and a means for increasing our understanding of medical instruments and their use near the end of the nineteenth century.

In their introduction, James Edmonson (curator of the Dittrick Museum of Medical History in Cleveland, Ohio) and F. Terry Hambrecht (a surgeon at the National Institutes of Health and an expert on the medical history of the American Civil War) describe the value this catalogue had on its first appearance in 1889: it contained the widest variety "of surgical tools and medical apparatus" available in the United States (p. 3); it presented visual and textual matter innovatively; it drew extensively upon the expertise of the medical and surgical communities; and it was a landmark of the bookmaking craft. For the same reasons, museologists have come to value it as an historical source.

Both authentic and richly detailed, it is also well organized. The catalogue begins with an in-depth table of contents, continues with 779 large pages of wood engravings and verbal descriptions of more than 4,400 instruments, and concludes with a 74-page index and price list. The visual images and text can be quickly and easily approached through the table of contents, the complex but easy-to-use index, or simply by browsing through the volume. Qualitatively speaking, the wood engravings are superb, unmatched — to my mind — by subsequent photographic representations, and the verbal descriptions of the instruments and their uses are lavishly detailed.

Destined to become a classic from the day it was published near the end of the nineteenth century, its value has been enhanced now by the thoroughly researched and clearly written introduction, and by the fine work of the twentieth-century printer and publisher. This catalogue is well worth a look when next in the library.

National Library of Medicine
History of Medicine Division
8600 Rockville Pike
Bethesda, MD 20894

HENRY R. ROLLIN. *Festina Lente: A Psychiatric Odyssey.* 194 pp. London: The British Medical Journal, 1990. Price $17.50.

Reviewed by O. SPURGEON ENGLISH

In a prologue to *Festina Lente: A Psychiatric Odyssey,* Henry Rollin states that he did not intend to write an autobiography, but preferred to regard the work as a history of psychiatry during the half century — from 1935 to 1985 — in which he had played a part. The result is a blend of both aims: a personalized voyage through the history of psychiatry by one of the field's leading figures.

From an early age, Rollin was impressed with the power and beauty of language and the subtlety of words. He was encouraged to read and write by a father who spoke four languages with ease, and was himself a lover of books and reading. Rollin spent his formative years in Leeds, and there developed a lifelong love of the theatre. He eventually studied medicine at Leeds University, and qualified for clinical work in 1935.

After qualifying, Rollin successfully obtained a position at the Oldham Royal Infirmary. Following Oldham, he did temporary and itinerant medical work from his home base in London, practicing privately and in hospitals, mental and general. A few of Rollin's patients worked for the theatre and made his access to matinées and sparsely attended evening performances easier, yet these perks did not compensate for work he found a definite drudgery. Seeking change, in 1937 Rollin secured a position as a ship's surgeon on a six-month voyage through the Far East.

Rollin's entry into psychiatry was not auspicious. His education in the subject consisted of a dozen "deadly dull lectures" in neuropathology followed by brief observation of patients while in medical school. It was not an irresistible interest which drew Rollin to psychiatry, but the practical need for a regular job, continued responsibility, and a steady income. In late 1938, he answered an advertisement in the *British Medical Journal* for the position of assistant medical officer in the London County Council Medical Hospitals Department. Rollin was accepted and stationed at Caterham Hospital, later to be called St. Lawrence's Hospital. While at Caterham, Rollin also undertook a year-long mandatory day-release course at the Maudsley Hospital, which put him in touch with some of the outstanding teachers in psychiatry of that time, such as Alfred Meyer, Erich Guttmann, Willi Mayer-Gross, C. P.

Blacker, and Frederic Lucien Golla. Rollin also attended lectures and clinical demonstrations at the National Hospital in Queen Square, where he met outstanding teachers in neurology, such as C. P. Symonds, J. Purdon-Martin, McDonald Critchley, and E. A. Carmichael, and studied electroencephalography. Rollin made a study of mongoloid patients at Caterham and submitted this thesis to the University of Leeds in 1941, as a contribution towards the award of an M.D. degree. Following World War II, during which he served in the Royal Air Force, Rollin's findings were published in the *American Journal of Mental Deficiency* in 1946.

Increasingly involved in psychiatry and neuroscience, Rollin still maintained a strong interest in the arts. Always an admirer of American writing, music, theatre, and cinema, he was keen to visit the United States. In 1953, he applied for a year-long Fulbright Fellowship to study psychosomatic medicine. Rollin chose to work with doctors Edward Weiss and O. Spurgeon English at the Temple University School of Medicine in Philadelphia, with a short stay at the Johns Hopkins Hospital in Baltimore where Adolf Meyer presided in psychiatry. Rollin was struck by a number of differences between psychiatric practice in Britain and America. He was surprised by the degree to which psychoanalysis had taken over theory and practice in psychiatry, even at the Johns Hopkins. Rollin was also impressed by the currency of psychoanalysis in the cinema and popular culture generally. He noted as well that in America, the patient chose and went directly to the psychiatrist of his or her choice, rather than by written introduction as was the practice in England.

Rollin concluded that there was much in America which seemed strange by British standards, but that there was much that was also praiseworthy. Rollin favored the American conference method of teaching over his own lecture-style education in Britain. Rollin thought this fostered a valuable familiarity between student and teacher. He also liked the use of tape recorders for teaching purposes. A visit to a state hospital for a day impressed him with the disparity between the level of psychiatric service offered there and that given the patients he had seen in the university clinic: the state institution was overcrowded, used obsolete equipment and shoddy decoration, and suffered from underfunding.

Rollin's interest in forensic psychiatry was stimulated by the Mental Health Act of 1959. Medicine had long been trying to distinguish more accurately the mentally ill from the criminal. The

question was whether the abnormal offender should be treated for his mental illness or punished by way of the penal system. Rollin published two papers in the *British Medical Journal,* in 1963 and 1965, on the subject which received favorable comment in both the medical and lay press and helped to clarify both popular and professional thinking. This led him to be invited to join a select group of forensic psychiatrists. Eventually he became a medical member of the mental health review tribunals. If it was thought necessary for the protection of the public, the Home Secretary could refer a patient to these tribunals, which were composed of legal, medical, and lay members, for their advice on leaves of absence, transfer to another hospital, or complete discharge of the patient.

Today, Rollin is enthusiastic as well as proud of his career as a medical journalist, which began in 1966 when he was invited to prepare an article on community care, then, as now, a controversial subject. Rollin has written close to 50 articles over the last 25 years and claims never to have felt more fulfilled than by seeing his contributions in print. By way of illustration, *Festina Lente* includes an example of one article describing some of his own experiences in surgery.

In the final chapter of the book, Rollin describes how he met and married his wife, Maria, and discusses the birth and rearing of their son and daughter. The arrival of the children placed him in the role of parent, and required some help in the nursery and some knowledge of developmental psychology. Rollin instructed his children in pedagogy and instilled in them the same love of books that his own father had given him. Rollin concludes by stating that he is very satisfied with the course his life has taken.

Festina Lente, which translated from the Latin means "to make haste slowly," is a well written account of the interesting life of an Englishman who chose to study medicine and the developing specialty of psychiatry between 1935 and 1985. It is the story of a man who takes the work of his profession seriously, makes many friends, deals modestly and justly with all, and contributes a great deal both to the progress of his field and to the welfare of mankind in general.

449 Righter's Mill Road
Narberth, PA 19072

VICTORIA A. HARDEN. *Rocky Mountain Spotted Fever: History of a Twentieth-Century Disease.* 375 pp. Baltimore, Md.: Johns Hopkins University Press, 1990. Price $39.50.

Reviewed by ROBERT M. SWENSON

In *Rocky Mountain Spotted Fever: History of a Twentieth-Century Disease* Victoria Harden examines the history of efforts to understand and control Rocky Mountain spotted fever. The book begins by describing the appearance of cases of "black measles" in the Bitterroot Valley of western Montana at the turn of the century. This "new disease" emerged as deforestation allowed the proliferation of the ticks which served as vectors and the small animals which served as the reservoir of the disease. As settlers and loggers moved on to these lands, cases of spotted fever suddenly appeared. At the request of the Montana state labor commissioner, two young pathologists, Louis B. Wilson and William M. Chowning, were brought in to find the cause of this strange ailment. They concluded that the disease was caused by a protozoan *Piroplasma,* which was transmitted by ticks. Harden correctly emphasizes the profound effect of the protozoa-insect paradigm in understanding the disease. As she puts it, "the intellectual model that linked only protozoan organisms to arthropod transmission, moreover, held such control over the research community that no one seems to have considered the possibility that some other organisms could be transmitted by ticks" (p. 45).

This intellectual model held until it was disproved by Charles Wardell Stiles, director of the newly created Division of Zoology at the Hygienic Laboratory of the Public Health Service. This was followed by several years of research by Howard Ricketts, culminating in his discovery of "small spherical, ovoid and diplococcoid forms" (p. 63), organisms later known as "rickettsia," which he was unable to culture on artificial media.

Tick eradication was the first method employed to control Rocky Mountain spotted fever. The question of who was responsible for the program turned into a struggle between Robert Cooley, the Montana state entomologist, and Thomas Tuttle, the secretary of the State Board of Health. This resulted in a rather ridiculous compromise in which "two federal agencies advocating two separate programs combated a tick known by two names" (p. 91).

Despite the inability to isolate the causative organism, an apparently successful vaccine was developed. As spotted fever was recognized outside the Rockies, demand for the vaccine outstripped the supply until Harold Cox, a microbiologist at the government's Rocky Mountain Laboratory, in Montana, developed a method to grow rickettsia in the yolk sacs of hen's eggs. This simplified vaccine production enormously and made possible the explosion of research during World War II. The book concludes with the development of antibiotics and pesticides and the shortlived belief that spotted fever could be eliminated.

Harden's book is an interesting complement to her previous volume *Inventing the NIH: Federal Biomedical Research Policy, 1887–1937* in that it examines a specific disease during the period when modern biomedical research is being established. However, what makes *Rocky Mountain Spotted Fever* successful is the depiction of not just the scientific aspects of investigation of the disease but their interweaving with the political, social, and intellectual factors. Harden carefully emphasizes the power of the paradigms of the day and their hold on the conceptualization of disease. She describes the bitter battles between the evolving professions of medicine and entomology for responsibility for programs. Lastly, Harden examines the interplay of economic issues and scientific priorities within spotted fever research, focusing, for example, on the pressures to accept a specific interpretation of the disease. In an era when we have seen the occurrence of several "new infectious diseases," it is interesting and informative to see how we dealt with a disease of the past.

Section of Infectious Diseases
Temple University Hospital
3401 North Broad Street
Philadelphia, PA 19140

JANET COLAIZZI. *Homicidal Insanity, 1800–1985*. 182 pp. Tuscaloosa, Ala.: University of Alabama Press, 1989. Price $23.95.

Reviewed by JULIE JOHNSON

Homicidal Insanity, 1800–1985 explores how the medical profession has grappled with society's expectation that it identify and restrain dangerous lunatics. Mental illness became a medical rather than a spiritual problem at the turn of the nineteenth century, and

this changed conception of the origins and treatment of insanity also affected its legal definition and disposition. As commitment became an increasingly complex legal process, physicians found themselves facing demands for clear and absolute definitions of elusive mental disorders. Even when physicians agreed on the signs and symptoms of a particular affliction, their interpretations as to its dangerous manifestations differed greatly.

Homicidal Insanity is a useful work for those interested in the intellectual history of psychiatry and mental illness, though it is flawed editorially and conceptually. The main editorial problem is the division of the text by numerous subheadings, some marking only a paragraph or two, resulting in an extremely choppy narrative. Yet what is a flaw in terms of the original conception of the book becomes an asset in the actual execution, as the true strength of Colaizzi's work rests in the extensive survey and summary of primary sources. The thoughts of Philippe Pinel, Jean Etienne Dominique Esquirol, Daniel Hack Tuke, Benjamin Rush, and other pioneers of psychiatry on the subject of homicidal insanity are clearly presented and easily accessible because of those same subheadings. Colaizzi's understanding and use of secondary literature fails to match that of her primary sources, but those in search of concise summaries of historical psychiatric theory will be well served by this book. The last chapter in particular, on the phenomenology of homicidal insanity, is an excellent analysis of psychiatric thought from the turn of the nineteenth century to the present.

For a work whose "purpose is to describe how physicians have diagnosed, explained, and restrained the dangerous insane" (p. 3), however, scarce mention is made of the main social arena for such explanations: the courts of law. Whether at commitment hearings or criminal trials, medical explanations must meet legal criteria for proof of insanity or dangerousness. Institutions for the treatment of the criminally insane also receive scant attention. The reader acquires little sense of how they differ from regular asylums and mental hospitals. The only truly descriptive piece of information about hospitals for the criminally insane is that the vast majority of their inhabitants were placed there for crimes against property, rather than those against the person: a fascinating piece of sociological data that is left unexamined.

Perhaps one of the reasons Colaizzi gives so little attention to these institutions is her concentration on the aspect of homicidal insanity that most bedeviled psychiatrists: predictability. Identifica-

tion of *potential* dangerousness has a much greater social utility than clinical diagnosis after the fact, but is much more difficult to achieve. Confirmation of the diagnosis takes a socially unacceptable form, while commitment on suspicion of dangerousness may result in the incarceration of the ultimately harmless. Medicine and the law have yet to reach an accommodation on such issues where civil rights and the public welfare are seen at odds.

Department of History and Sociology of Science
E. F. Smith Hall
University of Pennsylvania
Philadelphia, PA 19104

Memoirs

Memoir of Francis C. Wood, 1901–1990

JONATHAN E. RHOADS

Francis Clark Wood, M.D., for whom the Wood Institute for the History of Medicine at the College of Physicians of Philadelphia was named, died on 16 December 1990 at the age of eighty-nine. Quite possibly he was the most widely known and best loved physician in the Philadelphia community at the time of his death.

To review the mileposts of Wood's remarkable career, we note the following. He was born in South Africa in 1901, the son of missionary parents, and one of three brothers. At the age of 12, he returned with his family to Ohio where he grew up. He attended Princeton University, graduating in 1922. From there he came to the University of Pennsylvania to attend medical school, graduating in the Class of 1926, and interned in the Hospital of the University of Pennsylvania for the following two years. He then studied cardiology with the late Charles C. Wolferth. Together, they developed the chest leads which have become so important a part of electrocardiography and which enabled cardiologists to pinpoint areas of ischemia in the heart with greater accuracy and precision than had ever before been possible.

In addition to his notable scientific contributions, Wood early became an exemplar of humaneness in medicine. His consideration for patients and their relatives was a timely reminder to hospital house-staff of their duties to consider the human and the psychological, as well as the biological, aspects of illness.

Wood ascended the academic ladder, becoming a full professor of internal medicine in 1947. He was a member of the Society for Clinical Investigation, a Fellow of the American College of Physicians, a member of the Clinical and Climatological Society, and a member of the Association of American Physicians.

In 1942 Wood went on active duty with the U.S. Army as a member of the Twentieth General Hospital staff which, after a sojourn in Louisiana, was sent to the China-Burma-India Theater via the Pacific Ocean. They ran a two-thousand-bed hospital near the base of the Burma Road in Assam, India. There he had an

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 205-208
© 1991 by The College of Physicians of Philadelphia.

extended experience with tropical disease as well as with diseases frequently seen in the United States and, of course, with all the problems arising in military medicine. Wood eventually became chief of the department of internal medicine at the Twentieth General, and continued as such until approximately the time that the hospital was demobilized.

Returning to the United States and the University of Pennsylvania, Wood was soon selected as chairman of the department of internal medicine, succeeding Dr. O. H. Perry Pepper, who wished to step down after World War II. In this capacity, Wood served from 1947 to 1965. He trained numerous academicians as well as practicing internists. At least four of his medical residents went forth to serve as department chairmen in other medical schools — among them William J. Williams, at the Upstate Medical Center of the State of New York and Hadley Conn, who became chairman at the medical school at Rutgers University, now the University of Medicine and Dentistry of New Jersey in Piscataway. Paul Beeson, who served as chairman of medicine at Emory University, and later at Yale University and then became Regius Professor of Medicine at Oxford was also one of his students. Wood also had many other notable students.

After more than 17 years as chairman of the department of medicine, Dr. Wood retired but continued to teach and practice in the Hospital of the University of Pennsylvania until only a few years before his death. Wood was the recipient of honorary degrees from Princeton University, the University of Pennsylvania, Thomas Jefferson University, and Trinity College in Dublin, Ireland.

In 1964 Dr. Wood became vice-president of the College of Physicians of Philadelphia, and president three years later. It was shortly after this time that Wood joined in an effort to raise much needed funds for the College, particularly to encourage utilization of the rich historical resources of the College Library and to bring the wisdom of history to bear on modern problems of health policy. To this end, he sought the help of some of his friends and one of his patients, who agreed to make a matching gift to the College of half a million dollars to establish what is now the Francis C. Wood Institute for the History of Medicine. This important addition to the activities of the two-hundred-year-old College of Physicians has conducted a series of seminars and published a number of intensive studies, including one on internal medicine and another on hospitals. Its director also edits the *Transactions & Studies of the College*

of Physicians of Philadelphia, which is probably the oldest medical periodical still being published in the United States.

Much of Wood's greatness was not in such objective accomplishments, but rather in his personal life and contacts. He and his wife, Mary Louise, were among the most gracious of hosts and their home in Haverford was always a treat to visit. They entertained their colleagues, particularly young interns and residents, frequently and generously. Mrs. Wood shared her husband's devotion to the College of Physicians of Philadelphia, serving for many years on the Women's Committee.

There have been many episodes among my personal contacts with Dr. Wood which perhaps throw some light on his character and interests. During a series of teaching sessions on the care of patients with advanced cancer, I recall his making the point that the nearer the patients were to death, the more frequently they needed to see you, and that instead of trying to withdraw one's services gradually as they became increasingly unproductive in terms of curing the patient, one instead should make oneself available more often to the patient as a source of comfort and reassurance that everything that could be done, was being done. While such services may not be reimbursable with the present day system of third party payers, Wood was not thinking of reimbursement, but rather of the needs of the patient.

One of the annual events of the Wood household was the reading of Dickens' *Christmas Carol* during the Christmas holidays. Often they invited some of their friends to join them for the evening when Wood read the *Carol,* which he did with such sensitivity and appreciation that all were moved. On another occasion, I approached Wood with the blessing of the president of the University of Pennsylvania, Gaylord Harnwell, to ask if he would consider accepting the post of dean of the school of medicine. I am sure Harnwell had an instinct that Wood would decline but, nevertheless, I called on Wood in his home and explained to him the needs of the School of Medicine at that particular juncture in its history and how important it would be for him to move into this post. His reply, in effect, was that this would entail all the things he did not like to do and he would not consider it. He was very interested in teaching, in patients, and in research that advanced the ability of the medical profession to care for patients. Administration was a necessary evil in which he wanted to minimize his participation.

Wood's lifetime of service at the University of Pennsylvania, stretching as it did from entrance as a medical student in 1922 virtually to his death in 1990, covered the heart of the twentieth century. He lived to see the revolution initiated by the sulfonamides, and carried through by the antibiotics. He lived to see the establishment of blood banks and the unravelling of many of the problems of blood transfusions. He lived to see the development of the artificial kidney, kidney transplantation, liver transplantation, heart transplantation, and transplantation of the pancreas. He lived to see the average life span in the United States increase from about 60 years of age to 75 years of age.

Wood is memorialized at the University of Pennsylvania by the Francis C. Wood Room in the School of Medicine and a professorship of medicine named for him, and at the College of Physicians of Philadelphia by the establishment of the Francis C. Wood Institute for the History of Medicine. Perhaps Wood's greatest accomplishment, however, was the influence he exerted on the younger men whose careers he advanced and on the whole ambiance of the faculty of the School of Medicine at the University of Pennsylvania.

Wood is survived by his wife of 63 years, Mary Louise, by their two sons Francis C. Wood, Jr., and Lawrence C. Wood, and by their daughter Elizabeth V. Wood.

HUP
Silverstein Pavilion, 4th Floor
3400 Spruce Street
Philadelphia, PA 19104

Francis Clark Wood: His Contributions to Medical Science, 1901–1990

TRUMAN G. SCHNABEL, JR.

Francis Clark Wood decided to become a doctor at the age of eight, attracted to the profession by the unusual kindness and generosity of a Dr. Karl Kumm, an acquaintance of his father. Thirty years later Wood discovered in his father's library a volume titled *From Hausland to Egypt*, by Dr. Karl Kumm, who was a doctor of philosophy in geology and not a medical doctor as the young Wood had believed him to be.

Encouraged by his family to embark on a medical career, Wood entered Princeton University and concentrated on biology. As a laboratory assistant in Dr. Edwin Grant Conklin's laboratory, he had his first taste of biological research. In 1922 he enrolled in the Medical School of the University of Pennsylvania. His explanation for this choice was, "Jim Winfield, with whom I played basketball and lacrosse at Princeton, whose father [was] a physician at Kings County Hospital in Brooklyn, told him to go to the University of Pennsylvania Medical School because the best interns they got at Kings County came from the University of Pennsylvania."

During medical school, Wood was stimulated particularly by two teachers, Oliver Hazard Perry Pepper, who had just initiated a series of clinics for the first-year class, and Newton Richards, who taught him pharmacology. Following a two-year internship at the Hospital of the University of Pennsylvania, Wood joined the Hospital's cardiac clinic, the first of its kind in the country, which had been established in 1919 by Dr. Alfred Stengel.

Stengel brought the first electrocardiograph to Philadelphia from Germany in 1910. It was manufactured by Edelmann and housed in the Pepper Laboratory of Clinical Medicine at the University of Pennsylvania. Edward B. Krumbhaar had carried out pathological studies of heart block in cases with Adams-Stokes' syndrome and used the machine to study patients referred by the chairman of the department of medicine.[1]

1. Edward B. Krumbhaar, "Adams-Stokes' Syndrome, with Complete Heart Block, without Disruption of the Bundle of His," *Archives of Internal Medicine*, 1910, *5*:583–596. Edward B. Krumbhaar, "A Pathological Study of Two Cases of Heart Block with Adams-Stokes' Syndrome," *Archives of Internal Medicine*, 1914, *13*:390–397.

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 209-214
© 1991 by The College of Physicians of Philadelphia.

Stengel placed Charles C. Wolferth in charge of the cardiac clinic at the University of Pennsylvania. Following World War I, Wolferth worked briefly in the laboratory of Sir Thomas Lewis in London. Wolferth's first cardiographic studies, published in 1920, took place in the Pepper Laboratory using the Edelmann machine, which the cardiac clinic inherited when Krumbhaar was appointed director of the clinical laboratories at the Philadelphia General Hospital.[2] Wood's initial publication as a member of the clinic, a case of sinus arrhythmia with slowing of the pulse accompanying each normal second respiration, appeared in the *American Heart Journal* in 1929.[3]

A year later Wood and Wolferth published their seminal study of angina pectoris; they described the clinical and electrocardiographic phenomena of the attack and compared it with the effects of experimental temporary coronary occlusion.[4] In a letter to George Burch,[5] Wood credited the initiation of these studies, which resulted in the development of precordial leads, to the chance recording of an attack that occurred while a patient was sitting in the electrocardiographic chair.

At that time, there were two main hypotheses to explain the mechanism of an attack of angina pectoris. The coronary hypothesis held the attack to be due to a temporary interference with the blood supply of the heart, while the aortic hypothesis assigned it to distension of the first part of a diseased aorta. When shown the tracings taken before and during the attack, Wolferth said "I wonder if this doesn't show that angina is due to myocardial ischemia rather than to aortic distension." During the next two years electrocardiograms were recorded before, during, and after attacks of angina pectoris occurring spontaneously in six cases or brought on by exercise in 24 instances. [This was the forerunner of today's exercise testing.]

---

2. M. H. Fascell and Charles C. Wolferth , "Case Exhibiting Slow Auriculoventricular Rhythm and Paroxysmal Tachycardia with Unusual Ability to Interrupt the Fast Rate," *Archives of Internal Medicine*, 1920, 26:192.

3. Francis C. Wood, "A Case of Sinus Arrhythmia, with Pulse Slowing, Accompanying Each Second Normal Respiration," *American Heart Journal*, 1929, 5:104.

4. Francis C. Wood and Charles C. Wolferth, "Angina Pectoris: The Clinical and Electrocardiographic Phenomena of the Attack and Their Comparison with the Effects of Experimental Temporary Coronary Occlusion," *Archives of Internal Medicine*, 1931, 47:339–365.

5. George E. Burch and Nicholas P. DePasquale, *A History of Electrocardiography* (Chicago, Ill.: Year Book Medical Publishers, 1964).

At the same time electrocardiographic recordings were made in dogs and cats before, during, and after temporary occlusion of the coronary vessels. Wood noted that all attacks of angina in humans did not produce electrocardiographic changes in the limb leads nor did the occlusion of the anterior descending and right coronary arteries in animals, despite a dramatic change in the appearance of the heart. When all three of an animal's vessels were occluded, marked changes were seen in the electrocardiogram. In an effort to explain the discrepancy between the absence of electrocardiographic changes and the appearance of the heart when one or two vessels were occluded, Wood placed an electrode on the anterior surface of a dog's heart and was able to record from the precordial lead dramatic electrocardiographic changes when none were seen in the recordings of the limb leads.

Upon being told the results of the animal experiments, Wolferth remarked, "There are lots of patients with coronary occlusion who don't show changes in the electrocardiogram. We might put an electrode near the heart, right on the chest over the heart and see what happens." That afternoon a patient appeared at the clinic with a perfect story of an acute cardiac infarction. Wood placed one electrode right on the precordium and connected it to the right arm lead wire and put another opposite it on the left side of the chest at the back connecting it with the left arm lead wire. Much to his delight and astonishment there were dramatic changes in the ST interval of the precordial lead.

Between 1932 and 1935 Wood and Wolferth, with other members of the cardiac clinic (Robinette Foundation), published 14 papers which firmly established the importance of precordial leads in the diagnosis of myocardial infarction.

One of Wood's most interesting investigations stemmed from his observations of ventricular fibrillation and cardiac arrest in a dog's heart when its position in the chest cavity had suddenly changed. With his colleagues, he discovered that some cardiac patients had a preference for certain recumbent positions, because they became dyspneic in others.[6] He coined the term "Trepopnea"

---

6. Francis C. Wood and Charles C. Wolferth, "The Tolerance of Certain Cardiac Patients for Various Recumbent Positions (Trepopnea)," *American Journal of Medical Science*, 1937, *193*:354.

for the phenomena and believed it to be an etiological factor in some attacks of paroxysmal nocturnal dyspnea.[7]

In 1930 Louis Wolff, John Parkinson, and Paul White published a paper describing healthy young people prone to paroxysmal tachycardia whose electrocardiograms showed short P-R intervals and prolonged QRS complexes.[8] The Boston physicians attributed the widened ventricular complex to a bundle branch block. Shortly after the paper was published, Wolferth summoned Wood into his office and told him that the Boston people had made a grievous error in attributing the widened ventricular complex to a bundle branch block. Wolferth thought the short P-R interval and slurred upstroke of the QRS complex were caused by early excitation of part of the ventricle, possibly through the right lateral bundle described by Kent 41 years earlier. He further hypothesized that the arrhythmias occurred as a result of retrograde conduction through the accessory bundle of Kent and the development of a circus movement.[9]

In 1943, Wood, Wolferth, and George Geckeler reported their histologic findings in the heart of a patient who had the Wolff-Parkinson-White Syndrome.[10] The bundle of Kent was found just as Wolferth had predicted it would be some 13 years previously. In 1968 Will C. Sealy and his colleagues operated on a patient with the Wolff-Parkinson-White Syndrome who had uncontrollable attacks of paroxysmal arrhythmias.[11] They looked for and located a muscular pathway in the approximate location of Kent's right lat-

---

7. Francis C. Wood, Charles C. Wolferth, and Alexander W. Terrell, "Trepopnea as an Etiological Factor in Paroxysmal Nocturnal Dyspnea," *American Heart Journal*, 1937, *14*:255.

8. Louis Wolff, John Parkinson, and Paul White, "Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia," *American Heart Journal*, 1930, *5*:685.

9. Charles C. Wolferth and Francis C. Wood, "The Mechanism of Production of Short P-R Intervals and Prolonged QRS Complexes in Patients with Presumably Undamaged Hearts: Hypothesis of an Accessory Pathway of Auriculoventricular Conduction (Bundle of Kent)," *American Heart Journal*, 1933, *8*:297. Charles C. Wolferth and Francis C. Wood, "Further Observations on the Mechanism of the Production of a Short P-R Interval in Association with Prolongation of the QRS Complex," *American Heart Journal*, 1941, *22*:450–457.

10. Francis C. Wood, Charles C. Wolferth, and George D. Geckeler, "Histologic Demonstration of Accessory Muscular Connections Between Auricle and Ventricle in a Case of Short P-R Interval and Prolonged QRS Complex," *American Heart Journal*, 1943, *25*:454–462.

11. Frederick R. Cobb, Sarah D. Blumenschein, Will C. Sealy, et al, "Successful Surgical Interruption of the Bundle of Kent in a Patient with Wolff-Parkinson-White Syndrome," *Circulation*, 1968, *38*:1018.

eral bundle which when interrupted abolished the circus movement and cured the patient of his arrhythmias.

Before leaving the cardiac clinic in 1942 to join the 20th General Hospital in India during World War II, Wood contributed to papers dealing with thyroidectomy in thyroid heart disease,[12] the significance of right bundle branch block,[13] dissecting aneurysm of the aorta,[14] and diseases of the pericardium.[15] In addition he contributed to a number of case reports, one of the most interesting being written with Isidor S. Ravdin on the successful removal of a saddle embolus in John Lockwood, a friend and member of the surgical department at the Hospital of the University of Pennsylvania.[16]

As chief of medicine in the 2,000-bed 20th General Hospital in Assam, India, Wood played a major role in the writing of a definitive paper on scrub typhus, which discussed the disease in detail as it occurred in 616 cases cared for in the hospital during a 16-month period.[17] Shortly after returning to the United States in 1947, Wood was appointed chairman of the Department of Medicine in the Medical School of the University of Pennsylvania, a position he filled with eminence for some 17 years.

Wood's skills as a physician, teacher, and leader in medicine when coupled with his scientific contributions, particularly in the

---

12. Alexander Margolies, Edward Rose, and Francis C. Wood, "The Heart in Thyroid Disease. I. The Effect of Thyroidectomy on the Orthodiagram," *Journal of Clinical Investigation*, 1935, *14*:483–496. Edward Rose, Francis C. Wood, and Alexander Margolies, "The Heart in Thyroid Disease. II. The Effect of Thyroidectomy on the Electrocardiogram," *Journal of Clinical Investigation*, 1935, *14*:497–504.

13. Francis C. Wood, William A. Jeffers, and Charles C. Wolferth, "Follow-Up Study of Sixty-Four Patients with a Right Bundle Branch Conduction Defect," *American Heart Journal*, 1935, *10*:1056.

14. Francis C. Wood, Eugene P. Pendergrass, and Herman W. Ostrum, "Dissecting Aneurysm of the Aorta, with Special Reference to its Roentgenographic Features," *American Journal of Roentgenology*, 1932, *28*:437.

15. Francis C. Wood and Edward B. Krumbhaar, "Diseases of the Pericardium," in *Nelson's Loose-Leaf Living Surgery* (New York: T. Nelson & Sons, 1941), pp. 525–530.

16. Isidor S. Ravdin and Francis C. Wood, "The Successful Removal of a Saddle Embolus of the Aorta, Eleven Days After Acute Coronary Occlusion," *Annals of Surgery*, 1941, *114*:834–839.

17. John J. Sayen, Harold Pond, James S. Forrester, and Francis C. Wood, "Scrub Typhus in Assam and Burma: A Clinical Study of 616 Cases," *Medicine*, 1946, *25*:155–214.

field of electrocardiography, make him one of Philadelphia's most distinguished physicians in modern times.

Ralston-Penn Center
Room 231
3615 Chestnut Street
Philadelphia, PA 19104

Memoir of John Perry Hubbard, 1903–1990

EDITHE J. LEVIT

John Perry Hubbard, past president of the College of Physicians of Philadelphia, died at his home on 27 November 1990 at the age of eighty-seven. Pediatrician, scholar, teacher, medical administrator — John Hubbard was a man of great intellect, integrity, strength, and gentility. Throughout his several distinguished professional careers, he was hailed for his visionary leadership. While Hubbard was indeed a man of great vision, he was also a man who possessed the courage, wisdom, determination, and persuasiveness to turn those visions into reality, and to make those seemingly "impossible dreams" come true.

John Hubbard was a native Philadelphian, born on 26 October 1903. His early schooling, higher education, medical education, and practice in Boston often identified him as a New Englander. However, the greater part of his contributions to the medical arts and sciences ultimately took place in Philadelphia. Hubbard was graduated from Harvard College in 1926 and received his M.D. from Harvard Medical School in 1931. Following three years of postgraduate education in pediatrics at Children's Hospital in Boston, he was awarded a Rockefeller Traveling Fellowship which enabled him to serve for one year on the pediatric staff at St. Luke's International Medical Center in Tokyo, and in 1936 he was awarded a Commonwealth Fund Research Fellowship. During the ensuing five years (1937–1942) he was engaged in the private practice of pediatrics while, at the same time, actively participating in pediatric teaching and research at Children's Hospital in Boston.

It was during his early career in pediatrics that Hubbard made medical history in Boston some 50 years ago. He challenged his surgical colleague, Dr. Robert Gross, to consider performing a bold new procedure on a child with congenital heart disease. After a year of thorough, painstaking, and skillful preparation, and following consultation with Dr. Paul White, the first successful ligation of a patent ductus arteriosus was carried out on 28 August 1939. On the occasion when Hubbard later received the American Heart Association's Award of Merit, Dr. Helen Taussig aptly characterized

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 215-219
© 1991 by The College of Physicians of Philadelphia.

this historic breakthrough when she said: "John Hubbard found the key which unlocked the door to cardiac surgery."

In 1942, a career that appeared to be headed toward the yet-to-be-defined specialty of pediatric cardiology was interrupted by World War II. From 1942 until 1945, his U.S. Army Air Force service took Colonel Hubbard to SHAEF Military Government as chief of the public health section of the military missions, first in France and then in Denmark. The Danish government recognized his service with the distinguished decoration of the Order of Dannebrog.

Following military service, Hubbard returned to pediatrics as director of a four-year nationwide study of child health services conducted under the auspices of the Academy of Pediatrics with support by the U.S. Public Health Service and the U.S. Children's Bureau. In recognition of this landmark study, the prestigious Lasker Group Award was presented to the Academy of Pediatrics in 1949.

An educational institution near and dear to Hubbard's heart, and second only to his beloved Harvard, was the University of Pennsylvania, where he held the position of George S. Pepper Professor of Public Health and Preventive Medicine. He was chairman of that department from 1950 until 1966, when he was named professor emeritus. During his tenure at the University of Pennsylvania, Hubbard's capability and expertise in his discipline led to numerous consultative and advisory roles. He served as a member of the board of directors of the American Heart Association, as a member of the Board of Health of the City of Philadelphia, as chairman of the Association of Teachers of Preventive Medicine, as chairman of the Council on Rheumatic Fever and Congenital Heart Disease, and as a medical consultant to the Armed Forces.

The year 1950 marked the turning point in the history of the National Board of Medical Examiners, a Philadelphia institution. It was in 1950 that John Hubbard took on a new and challenging responsibility that would become the capstone of his professional life. As president of the National Board over a period of 25 years, Hubbard impressed his personality and leadership upon that organization to the point where, to his peers and to the entire medical community, he and the board were virtually synonymous. It is understandable that Hubbard's long and splendid career with the National Board became the one for which he was best known and esteemed throughout the world.

Under his dynamic leadership, the National Board entered a new era of evaluation, combining the sciences of testing and medicine. The use of high-quality multiple-choice testing soon became the gold standard for evaluation throughout the entire spectrum of medical education. As a result, essentially all state licensing boards came to recognize the National Board examinations and certification as an acceptable alternative to state board examinations for purposes of licensure.

Having revolutionized the process of evaluation, Hubbard, in typical fashion, took on yet another "impossible dream" — that of achieving uniform, qualifying standards for licensure to practice medicine. Through his strong personal commitment and masterful diplomacy over two decades, mutual confidence and respect developed between the National Board and the licensing community. Once again, Hubbard's vision became a reality. We now have in place the foundation of a uniform standard of qualification for medical practice throughout the nation.

In a special tribute on the occasion of his retirement in 1974, the National Board's governing body conferred upon him the title of president emeritus, and re-wrote history by adding an amendment to its by-laws to recognize Hubbard as a life member of the board. Additionally, to recognize him in perpetuity, the board established the John P. Hubbard Award to be given annually to an individual who has made a significant contribution to the pursuit of excellence in the field of evaluation in medicine.

Neither the National Board of Medical Examiners nor John Hubbard was born — let alone even thought of — when Ralph Waldo Emerson wrote his classic essay "Self-Reliance" in 1841. Yet, as subsequent events have demonstrated, Hubbard might well have been the prototype Emerson had in mind when he observed that "every institution is the lengthened shadow of one man."

In 1974, Hubbard focused his efforts, energy, and leadership skills on still another distinguished career, when he was elected president of the College of Physicians of Philadelphia. Having been elected vice president in 1972, Hubbard initially assumed the position of president pro tempore in January 1974, when then president Katherine Sturgis found it necessary to relinquish her duties for health reasons. Hubbard was subsequently elected to the presidency in September 1974 for a full term, and in the spring of 1977 was asked to remain for an additional year in view of the major activities already underway.

During his tenure as president of the College, Hubbard's strong and determined leadership, together with the significant efforts of the officers and members of Council, led to the achievement of a number of new initiatives including the development of continuing medical education programs, the expansion of the Mideastern Regional Medical Library Service (MERMLS), the enormously successful Bicentennial Lecture Series, the establishment of the Francis C. Wood Institute for the History of Medicine, and the exceptional fund-raising efforts which provided substantial support for both endowment and programs.

Throughout his professional life, John Hubbard's unique accomplishments were recognized by numerous honors and awards. International recognition of his distinguished service to medical education is evident in the action of the Royal College of Physicians and Surgeons of Canada when it conferred upon him the first Duncan Graham Award in 1969 for "distinguished service and contribution in the field of medical education," and in 1977 when he received an honorary degree from Uppsala University in Sweden for his major contributions worldwide in the field of evaluation in medicine. In addition to earlier national recognition, the American College of Physicians in 1971 bestowed upon him the title of Master of the American College of Physicians, and in 1976 he was chosen as the recipient of the Pennsylvania Medical Society Distinguished Service Award for "his service to the science and art of medicine and for his life and activity which reflect great credit on the profession."

In reflecting upon the extraordinary sequence of Hubbard's professional accomplishments, it is both amazing and heartening to know that he led a wonderfully balanced life. Due in large measure to his beloved wife, the late Dorothy Allen Hubbard, he was able to set aside the awesome responsibilities of his work and have time to enjoy his loving family. The Hubbard home was always a very special place, filled with warmth, good cheer, and good friends. It was a place where Hubbard found respite from the cares of the day, whether making fine furniture in his wood-working shop or tending to his treasured rose gardens. A devoted and loving husband, father, and grandfather, Hubbard is survived by his daughters Elizabeth H. Edgerton and Florence H. Lloyd, and by seven grandchildren.

History will record John Hubbard as a great medical statesman who has left an everlasting imprint upon the quality of medical education and medical care. But those of us whose lives he touched

will hold dear the everlasting memory of this very special man whose friendship we were privileged to share.

1910 Spruce Street
Philadelphia, PA 19103

Memoir of Arthur M. Dannenberg, Sr., 1891–1990

HENRY J. TUMEN

Dr. Arthur M. Dannenberg, Sr., a distinguished pediatrician and, for many years, a dedicated and very supportive Fellow of the College of Physicians of Philadelphia, died at his home on 7 December 1990, just one month prior to his one hundredth birthday. He was born in Philadelphia on 7 January 1891. After attending Philadelphia schools, he was admitted to the University of Pennsylvania School of Medicine and graduated with the Class of 1913. He served an internship at the Jewish Hospital of Philadelphia — now the Albert Einstein Medical Center (AEMC) — and then volunteered for service in the Medical Corps of the United States Army. For two years — from August 1917 to August 1919 — he was the commanding medical officer of a meningitis ward at Camp Jackson, South Carolina.

On completion of this military duty, Dannenberg returned to Philadelphia to begin his medical practice. During a relatively brief trial of general practice, however, he observed that he related very easily to children and that he possessed an aptitude in their care. He decided that, for him, pediatrics was the most attractive branch of medicine in which to seek a career. He applied for an appointment to a junior position in the pediatrics department of the Jewish Hospital, and was accepted. This department received his entire attention and efforts for all the years of his medical activities.

Recognition of his competence and dedication brought repeated annual promotions in rank and increasing responsibility. He eventually became the senior attending pediatrist and chief of pediatrics at the Northern Division of the AEMC in 1938. Later in life, Dannenberg spoke with great pride of his continuous association of more than 30 years with this department.

Dr. Dannenberg served as a consultant to a number of Philadelphia area institutions engaged in the care of children. He was at various times the medical director and pediatrist of the Max and Sarah Bamberger Home in Longport, New Jersey; the Jewish Foster Home; the Home for Hebrew Orphans; the Juvenile Aid Society; and the Phipps Institute. He was also a board member of the Young Men's/Young Women's Hebrew Association (YM/YWHA) and of

Transactions & Studies of the College of Physicians of Philadelphia Ser. 5, Vol. 13, No. 2 (1991); 221-225
© 1991 by The College of Physicians of Philadelphia.

the YM/YWHA camps, and of the Willowcrest Convalescent Home.

The Phipps Institute was devoted largely to the care of patients with tuberculosis, among which were children who contracted the disease because of open advanced cavitary lesions suffered by their parents and the poor level of household sanitation and ordinary hygiene. Phipps was one of the few institutions in Philadelphia at which there was significant investigation of the treatment of tuberculosis and of the establishment of public health measures that might control it. Dannenberg contributed to the development of educational programs for the families of tuberculosis patients and instituted measures to help control the spread of the disease.

Dr. Dannenberg's activities at Phipps led to a change in his life. Working there in the 1920s was a very attractive young woman named Marion Loeb, a diligent and intelligent social worker who gave him great help with the problems of patients. Dannenberg developed a strong personal interest in this pleasant and hard working associate and they later married. This very happy and congenial union lasted many years, until Mrs. Dannenberg's death in 1978.

When Dannenberg became chief of the pediatric department at the Northern Division of the AEMC, his first endeavor was the development of an educational program with very high standards, one of great value to the interns and residents of the department and to its attending staff. Dannenberg also wanted the teaching sessions to be shared by physicians of the general community. His program, in fact, became a forerunner of the CME programs that are now so popular, and also attracted the attention of Temple University Medical School. Dannenberg was asked to permit the attendance of Temple students at his teaching sessions, and he was subsequently appointed to the Temple pediatric faculty.

Dr. Dannenberg's teaching rounds were primarily reviews of the diagnostic and management problems of the patients currently receiving active care in the hospital or its clinics. The greatest educational value of the sessions, however, was the opportunity they gave to those attending to observe Dannenberg's clinical skill and judgment. He was a master clinician. To listen to him search out in keen questioning every feature of a patient's history, to watch him examine a patient and delineate any abnormality, and then work through to a diagnostic decision on which to base a therapeutic program was a wonderful learning experience that always impressed those in attendance. These young physicians and students

learned from Dannenberg the value of a slow, meticulous, analytical approach to a clinical problem and the need for a careful and well thought-out approach to the study of a patient. All of those who trained with him became known in the general medical community as careful clinicians and their practices gave evidence of the great regard in which this ability was held by the families of the patients they treated. It is truly a tribute to Dr. Dannenberg that his pattern of teaching is still followed by the pediatric service of the Northern Division of the AEMC, and that "Dannenberg teaching rounds" are still a feature of the service of which he was the chief for so many years.

Dannenberg's private practice increased rapidly following his appointment as chief of pediatrics at the AEMC and his involvement as consultant to so many of the social agencies in Philadelphia that were engaged in the care of children. Although the increased prominence of his name certainly was a factor in this, it must also be recalled that this was a period of growing public awareness of pediatrics as a well-defined discipline within the practice of medicine, with its own special purpose. Infants and young children were no longer considered as just small variants of adults and it was now recognized that they should not be treated by physicians whose sole experience had been with adult patients. The public was beginning to use the term "pediatrician" and the practices of most physicians so designated who were known to have had specific training and experience in child care, grew rather rapidly.

In turning to Dannenberg, the family of a sick child found a physician who was not only thoroughly abreast of all scientific advances in pediatrics, and knew all the details of fluid replacement and nutrition and maintenance of the metabolic balance. They also found in him a physician who was a kindly human being; a physician who knew how to deal with a parent's anxiety and distress; who knew how to explain all that was going on with their child; who did not become easily annoyed by repeated anxious questions; and who knew how to explain and simplify those problems of feeding, bathing, and caring that are so difficult for young parents. It was only natural, therefore, that Dannenberg was widely recommended by the families of children whom he treated.

Many other activities not related to his growing practice caused Dr. Dannenberg to maintain a very busy working schedule. He devoted considerable time towards improving the functioning of his department within the hospital, and towards the department's

teaching activities. He produced a number of papers for the pediatric literature, he was active in the affairs of the American Pediatric Society, and he helped to organize the Philadelphia Pediatric Society. He took special interest in the Aid Association of the Philadelphia County Medical Society. This organization was devoted particularly to providing assistance to the needy families of deceased physicians whose estates had proven to be insufficient to meet the requirements of their survivors. Dannenberg made major contributions to the Association, organized fundraising programs, and helped supervise the financial management of the charity to assure its fiscal strength.

Dannenberg also possessed a strong sense of public interest. He and his wife had purchased a 10-acre tract of land with a lovely stream, beautiful trees, and a fine old house in Upper Dublin Township and made this a retreat in which they spent considerable time relaxing and entertaining during the warmer months of the year. In 1969 this tract, called "Dannybrook," along with a large monetary gift to maintain the landscaping and trees of the property, was deeded by Dannenberg to Dublin Township with the understanding that the land was not to be used to build additional houses but was to remain open space for the recreation and pleasure of the people of the community.

Unfortunately, when he reached his sixties, Dr. Dannenberg was beset by a number of health problems that led to periods of incapacitation, but he did his best to return to normal activity as rapidly as possible. He continued to follow financial matters closely, and his investment counsel was respected and sought for various charitable organizations by many of his colleagues. However, he began to have troublesome hoarseness and studies revealed the presence of tumors of the vocal cords. Unfortunately, these were found to be malignant and at the age of 68 Dannenberg had to undergo a total laryngectomy. He withstood this operation quite well but did have to use an artificial larynx for the rest of his life. Despite this handicap, Dannenberg maintained the ability to communicate quite readily with those around him, and it was never suggested by him or anyone else that the loss of his natural voice was a source of embarrassment or a restriction on his activities. His poise in the face of this difficulty gave convincing evidence of the strength of his character.

Throughout his life, one of Dr. Dannenberg's great loves was the Philadelphia Orchestra. He could usually be seen sitting in his accustomed seat at one of the Saturday evening concerts, often after

the death of his wife accompanied by an attractive and vivacious lady, one of his many "friends." This was the occasion for amused comment and knowing looks, all of which added to Dannenberg's pleasure in the evening.

Dannenberg became a Fellow of the College of Physicians of Philadelphia in 1938 and was always greatly interested in its development. He and his wife made major contributions to support the College's growth and activities. He was elected an "honorary" member of the Council and assisted in the development of plans for a new wing of the College building when this idea was under active consideration. For a number of years he was a member of the Finance Committee and took a great interest in the financial affairs of the College. His advice was helpful in the planning of its investments and the management of its funds. His last appearance at a College function was at the College Night of 19 November 1990. Dannenberg's presence that evening was specifically requested by Daniel L. Shaw, Jr., president of the College.

Dr. Dannenberg is survived by his two sons, eight grandchildren, and six great-grandchildren. He was particularly proud of the scientific and academic accomplishments of his sons. The older is professor of experimental medicine in the School of Hygiene at the Johns Hopkins University, and the younger son is clinical professor of periodontology in the School of Dental Medicine of the University of Pennsylvania.

Arthur Dannenberg was in every respect a fine physician, a fine man, and a fine citizen. His contributions to the practice of pediatrics were outstanding, and he was particularly valuable to the Philadelphia-area because he served as an advisor to many of the social agencies that helped develop community policies and support for child care. His many friends admired the warmth of his personality, and his courage and strength in the face of the adversity of ill health. We remember him with great affection, and with sincere thanks for teaching us to make the most of our lives by sharing with others.

1830 Rittenhouse Square
Philadelphia, PA 19103

INSTRUCTIONS TO AUTHORS

Manuscripts submitted for publication should be sent to the Editor, *Transactions & Studies of the College of Physicians of Philadelphia*, 19 South 22nd Street, Philadelphia, PA 19103. The Copyright Law makes it necessary for authors to sign an agreement transferring copyright ownership to the journal. Copyright will be released back to authors for most purposes, when requested in writing.

Transactions & Studies, a quarterly publication of the College of Physicians of Philadelphia, is under the editorial supervision of the Francis C. Wood Institute for the History of Medicine. *Transactions & Studies* is a journal of the culture and history of medicine, and a record of College activities. Articles should follow the rules of good scholarship, including the footnote style, outlined in *A Manual of Style*, 13th edition (Chicago, Ill.: University of Chicago Press, 1982). Up to three black and white glossy photographs may be included in articles. Tables must be typewritten on separate sheets; they should be prepared professionally before submission.

Transactions & Studies prefers to receive articles on 5¼ inch computer disk, preferably in "Word Perfect," although other disk sizes and languages are acceptable. Articles on disk should have the notes, in footnote form, listed at the end of the paper. When sending manuscripts as hard copy, authors should submit two copies, typed on one side of 8½ by 11 inch paper; all material, including quotations and footnotes, must be double-spaced. A brief biography of the author should also be included. The author must verify all quotations before the manuscript is submitted for publication. For each quoted passage there should be a specific citation to the primary source, including page numbers. When quotations totaling more than two hundred words of prose, or more than one line of verse, are made from any work still in copyright, the author must secure permission to quote from the holder of the copyright and must see that due acknowledgment is made. Unpublished material, such as a letter, remains the property of the writer or the heirs (no matter who owns the object), and written permission must be secured for any quotation from such material.

Manuscripts must be satisfactorily documented. References should be indicated in the text by superior figures, and should be numbered consecutively. They should be typed on separate pages at the end of the manuscript, and *not at the foot of the manuscript page*. Each reference should be designated by the corresponding number, on the line, followed by a period.

Book references should include the facts of publication [author, *complete title* (place: publisher, date)]. Periodical references should include the year, volume number, and page numbers. The first time a work is referred to in the notes it should be cited in full. Subsequent citations should be by surname of the author and a shortened but unambiguous form of the title, consistently adhered to. "Ibid.," referring to the work named in the immediately preceding reference, may be used when it is unambiguous and effects a real saving of space.

EXAMPLES

William H. Helfand, *Medicine and Pharmacy in American Political Prints* (Madison, Wis.: American Institute of the History of Pharmacy, 1967), p. 35.

Helfand, *Medicine and Pharmacy*, p. 51.

Ibid., p. 60.

Wendy Shadwell, "Britannia in Distress," *American Book Collector*, 1986, 7:1.

A complete set of instructions will be sent, upon request, to authors.

TRANSACTIONS & STUDIES
OF THE
COLLEGE OF PHYSICIANS OF PHILADELPHIA
Series V Volume XIII Number 2 June 1991

MEDICINE AND HISTORY

Contributors v

Puerile Respiration: Laennec's Stethoscope and the Physiology of Breathing
JACALYN DUFFIN 125

Elisha Kent Kane, M.D., U.S.N., 1820–1857
JOHN McCLENAHAN 147

Rising Stars: Carl G. Jung and Astrology
FRED B. ROGERS 167

FROM THE HISTORICAL COLLECTIONS OF THE LIBRARY

Elisha Kent Kane's Unpublished Treatise on Dropsy
THOMAS A. HORROCKS 173

WOOD INSTITUTE REPORTS

Report of the 1988–1989 Rockefeller Fellows
NANCY J. TOMES
JULIA EPSTEIN 177

Report of the 1989–1990 Rockefeller Fellow
PHILIP PAULY 186

LIST OF BOOKS RECEIVED

REVIEWS 195

MEMOIRS

Francis Clark Wood (1901–1990)
JONATHAN E. RHOADS 205

Francis Clark Wood: His Contributions to Medical Science, 1901–1990
TRUMAN G. SCHNABEL, JR. 209

John Perry Hubbard (1903–1990)
EDITHE J. LEVIT 215

Arthur M. Dannenberg, Sr. (1891–1990)
HENRY J. TUMEN 221